DOCUMENT RESUME

ED 403 157 SE 059 663

TITLE	Achieving the Goals: Goal 5, First in the World in Math and Science. Technology Resources. [Resource Guide to Federal Support for Technology in Education.]
INSTITUTION	Federal Interagency Committee on Education, Washington, D.C.
REPORT NO	ISBN-0-16-048868-0
PUB DATE	96
NOTE	147p.
AVAILABLE FROM	U.S. Government Printing Office, Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402-9328.
PUB TYPE	Guides - Non-Classroom Use (055) -- Reports - Descriptive (141)
EDRS PRICE	MF01/PC06 Plus Postage.
DESCRIPTORS	*Computer Uses in Education; *Educational Change; Elementary Secondary Education; Federal Government; *Federal Programs; Financial Support; *Mathematics Achievement; Program Development; *Science Education; Standards; Technology; *Technology Education
IDENTIFIERS	*Goals 2000

ABSTRACT

The information in this volume was compiled in order to provide a guide to the technology-in-education programs of the federal government. The goal of this book is to provide important information about technological resources that will assist teachers, administrators, students, parents and others in achieving the goal of the United States being first in the world in math and science. Included are descriptions of technology-in-education programs in some offices and entities of the federal government, such as the Office of Technology Policy, Office of Bilingual Education and Minority Language Affairs, Office of Elementary and Secondary Education, Office of Educational Research and Improvement, Office of Postsecondary Education, Department of Agriculture, Department of Commerce, Department of Defense, Department of Energy, General Services Administration, Department of Health and Human Services, Department of Housing and Urban Development, Department of the Interior, Department of Justice, Department of Labor, Department of Transportation, Department of Veterans Affairs, National Aeronautics and Space Administration (NASA), National Endowment for the Arts (NEA), National Endowment for the Humanities (NEH), National Science Foundation (NSF), and the Smithsonian Institution. (DDR)

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ED 403 157

TECHNOLOGY RESOURCES

Achieving the Goals

Goal 5
First in the world in math and science

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

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Achieving the Goals–Goal 5

First in the World in Math and Science
Technology Resources

Federal Interagency Committee on Education
Office of Intergovernmental and Interagency Affairs
U.S. Department of Education

For sale by the U.S. Government Printing Office
Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402-9328
ISBN 0-16-048868-0

On June 30, 1996, the Department of Education released the national technology plan, *Getting America's Students Ready for the 21st Century: Meeting the Technology Literacy Challenge*. Educators, students, parents, community leaders, academic experts and the high technology industry provided broad input to the development of the plan.

Although new technological innovations have transformed American life, from checkout counters to assembly lines, our schools are still a step behind. Indeed, the hard realities are that only 4 percent of schools have a computer for every five students (a ratio deemed adequate to allow regular use) and only 9 percent of classrooms are connected to the Internet.

Computers are the "new basic" of American education and the Internet is the blackboard of the future. If we help all of our children to become technologically literate, we will give a generation of young people the skills they need to enter this new knowledge- and information-driven economy.

The Federal Interagency Committee on Education (FICE) compiled the information in this volume to create an invaluable resource for education reformers. Many of the technology-in-education programs in the federal government are compiled in one place for the first time. These resources provide a wealth of information for schools and school districts that seek to expand their technology base.

We hope that this guide will help us meet the technology challenge and that, with the help of all Americans, our children will be prepared for the future.

Sincerely,

Linda Roberts

Linda Roberts
Director,
Office of Educational Technology

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Introduction

> *Our country was built on a simple value that we have an obligation to pass better lives and better opportunities on to the next generation. Education is the way we make that promise real. Today, at the dawn of a new century, in the midst of an information and communications revolution, education depends upon computers. If we make an opportunity for every student a fact in the world of modems and megabytes, we can go a long way toward making the American Dream a reality for every student. Not virtual reality -- reality for every student.*
>
> President Clinton

Computers and information technology have transformed nearly every aspect of American life, increasing productivity, creating new methods of connecting individuals and organizations, and changing the way people work and play and learn. Every major U.S. industry relies heavily on computers and telecommunications to do its work. But so far, despite compelling evidence that technology has the power to change the nature of education as dramatically as it has changed the workplace, too many American schools have been exceptions to the information revolution.

It is difficult to conceive of the United States reaching its fifth National Education Goal, which reads, "By the year 2000, United States students will be first in the world in mathematics and science," without technology. Technology has driven the scientific and mathematical revolution of the 20th century. It will continue to do so.

We know that success as a nation will depend substantially on our children's ability to acquire the skills and knowledge necessary for the world of work in a high-tech world. Indeed, one of the basic underpinnings of Goals 2000 is raising the level of achievement in all the basics, but especially in math and science, which is the driving force of industry today. We know that without the opportunities afforded by technology the nation's future will be seriously jeopardized. In recognition of this reality, Secretary of Education Riley has called technology the "new basic," and the U.S. Department of Education, in conjunction with educators and technology experts from around the country, has developed a national technology plan. This plan, *Getting America's Students Ready for the 21st Century*, sets out four pillars in the quest to strengthen the role of technology in education:

> All teachers in the nation will have the training and support they need to help students learn using computers and the information superhighway;
>
> All teachers and students will have modern multimedia computers in their classrooms;
>
> Every classroom will be connected to the information superhighway; and

Effective software and on-line learning resources will be an integral part of every school's curriculum.

Investment in technology for our schools has paid, and will continue to pay, rich dividends. There is little disagreement about this fact. Strong support comes from members of the business and industry communities who have had first-hand experience with the way technology increases efficiency, improves customer relations and boosts profits. Strong support comes from parents who understand the realities of today's world and embrace technological literacy as a core subject as important for their children as reading, writing and arithmetic. Strong support comes from a growing body of research which shows how the use of technology in classrooms results in higher levels of student motivation and performance, lower absenteeism, reduced dropout rates and greater satisfaction with school.

Technology has the power to promote fundamental school reform in ways we could only imagine in the past. By providing easy access to knowledge and knowledge creators, it can level the playing field and dramatically increase opportunities for both teachers and learners to meet higher standards.

For teachers, technology breaks down the isolation that has traditionally plagued their profession by creating new avenues for sharing information, insights and best practices. It encourages them to present more complex material and expect more from students. It provides them with better ways of monitoring individual progress. It allows them to put into practice effective principles of teaching and learning that have been difficult to implement in the past. Specifically, the use of new technologies in the classroom can transform teaching and learning by:

> moving the focus of instruction from whole class to small groups;
>
> changing the primary mode of instruction from lecture and recitation to coaching;
>
> requiring students to be explorers, investigators, thinkers and workers rather than passive recipients of pre-digested information;
>
> allowing individual learners to pursue areas of interest in depth rather than requiring all of them to learn the same material on the same day in the same way;
>
> providing teachers with more time to work with students who are most in need while those who are most capable advance at a pace appropriate for them;
>
> creating opportunities for assessment based upon products and real tasks rather than solely upon traditional tests;
>
> promoting cooperation and collaboration rather than competition; and

making it possible for teachers to address diversity more effectively rather than teaching primarily to the mean.

For students, technology provides increased opportunities for involvement with tasks that are complex, authentic and interesting and, at the same time, for assuming greater control of their own learning. They can chat with counterparts across the world through telecommunications, build their own curriculum materials with hypermedia formats, visit far-off places on electronic field trips, experience past and future worlds in virtual reality, enroll in college-credit courses through distance learning. No longer limited to pre-screened and packaged information, they can electronically search libraries and databases worldwide to obtain the information they require or desire. Instead of merely memorizing and recalling information, they can seek it out, assemble it, make judgements about its quality and present their findings to others within the school and beyond it. They can practice using their minds well in settings and situations their parents as students could barely imagine. They can become capable not only of functioning in but of mastering a new world which increasingly demands technological literacy of its citizens.

Transforming schooling through technology will work. We have much evidence that it will, and numerous examples of schools where it already has. While many communities across the country have already responded to the demands of this digital age by making substantial investments in technology for education, the work that remains to be done looms large. Bringing the promise of technology to all of our students in all of our schools will be a massive undertaking. However, it is an undertaking that we can accomplish. Meeting the technology literacy challenge will be expensive. However, it will cost only a fraction of what we are already spending on education as a nation. It will cost only a fraction of the price our children will pay if we do not meet the challenge.

No community, no school, no child can be left behind. We simply cannot afford to let unequal access to technology widen any further the gap between haves and have nots. To meet the technology challenge for every student, states, localities, the federal government and the private sector will all need to play significant roles.

The document that follows provides an overview of grants and funding sources for technology from a wide field. While they are diverse in size and scope, nearly all reflect the need for building strong relationships among committed partners, for bringing together the public and private sectors, and for involving parents and community in the process. The aim of this reference guide is to galvanize educational technology efforts already underway and spur the creation of new programs that will address the four pillars of the national technology plan. The models that emerge as a result will point the way and pave the path for those who follow. They will provide an important piece in assuring equal access to technology and, along with it, equal access to a quality education for every one of America's school children.

Although this document has Goal 5 as its title, it does not provide a comprehensive look at all the resources available in science and mathematics throughout the federal government. It does, however, provide important information about technological resources that will assist teachers, administrators, students, parents and others to achieve that goal. It is our hope to produce a subsequent volume that will provide a more comprehensive look at the resources available for mathematics and science.

U.S. Department of Education

The Department of Education (ED) promotes the use of technology in schools, libraries, and communities as a part of its mission of ensuring equal access to education and promoting educational excellence throughout the nation. The Clinton administration has put technology in the forefront of education reform efforts, including technological innovation in the Goals 2000 legislation, the reauthorization of the Elementary and Secondary Education Act and the Office of Special Education and Rehabilitative Services. ED will continue to promote technology as a key to school improvement.

Office of Technology Policy

National Long-Range Plan for Technology in Education

In accordance with the requirements of section 3121 of P.L. 103-382 of the Improving America's Schools Act of 1994, the secretary of education submitted a National Plan for Technology in Education to Congress. The plan was developed in collaboration with hundreds of educators, citizens, and industry leaders in seven regional forums, two national conferences, dozens of interagency meetings, and on-line discussions over the Internet. The plan will galvanize local, state, and federal investments in technology and proposes to leverage resources for teacher training, access to technology, and school reform.

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Challenge Grants for Technology in Education

The National Challenge Grants support activities designed to enhance the use of technology in teaching and technology-enhanced curricula. The program provides assistance to consortia of state educational agencies, school districts, institutions of higher education, businesses, museums, and other public and private agencies that include at least one school district located in a high-poverty area. In each Challenge Grant community, the consortium makes a substantial commitment to supplying and funding equipment, software development, technical support, telecommunications services and other costly items. The grant itself augments these local investments and supports new curriculum design, teacher training, and the evaluation of educational effectiveness. Activities that the consortia undertake may include professional development as part of a project designed generally to improve student learning or to help integrate quality educational technologies into the school curriculum. A list of current challenge grant recipients is included in Appendix A.

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Regional Technology in Education Consortia

Regional consortia, which consist of state educational agencies, institutions of higher education, and nonprofit organizations, help states, school districts, schools, adult literacy centers and other institutions use advanced technology to support improved teaching and increased student achievement. Their primary goal is to provide technical assistance that can help to ensure that technology is used effectively to promote school reform. Regional consortia work with institutions of higher education and other organizations to improve pre-service education so that new teachers are able to use new technology effectively. Consortia help veteran teachers integrate technology into the curriculum in ways that can best promote student achievement. The Office of Educational Research and Improvement (OERI) currently funds six consortia, each of which has a specific subject-matter or geographic focus. Current consortia are listed in Appendix B.

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Office of Bilingual Education and Minority Languages Affairs

The Office of Bilingual Education and Minority Languages Affairs funds a number of programs, described below, which have technology as a primary component. The office is organized in such a way that there are three regional contacts for each program. The names and addresses of the contacts are listed below the program descriptions.

Program Development Implementation Grants

Makes grants available to develop and implement new comprehensive, coherent, and successful bilingual education or special alternative instructional programs for limited English proficient students. Programs may include early childhood education, K-12 education, gifted and talented education, and vocational and applied technology.

Program Enhancement Projects

Makes grants available to carry out highly focused, innovative, locally designed projects to expand or enhance an existing bilingual education program or a special alternative instructional program for limited English proficient students. May include program elements utilizing educational technology.

Comprehensive School Grants

Makes funds available to assist in the implementation of schoolwide bilingual education or special alternative instructional programs for reforming, restructuring and upgrading all relevant programs and operations, within an individual school, that serve all (or virtually all) children and youth of limited English proficiency in schools with significant concentrations of such children and youth. Such programs may contain components utilizing educational technology.

Systemwide Improvement Grants

Makes funds available to assist in the implementation of districtwide bilingual education or special alternative instructional programs to improve, reform, and upgrade relevant programs and operations, within an entire local education agency, that serve a significant number of children and youth of limited English proficiency in local education agencies with significant concentrations of such children and youth. Such programs may contain components utilizing educational technology and technological applications.

Academic Excellence Awards

Provides financial assistance for the dissemination of programs of bilingual education, special alternative instruction, and professional development that demonstrate promise of assisting children and youth of limited English proficiency to meet challenging state standards. Such programs may include educational technology and training.

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Office of Elementary and Secondary Education (OESE)

Education for the Disadvantaged

The Title I Program, Improving Basic Programs Operated by Local Education Agencies (Title I Basic Grants, Concentration Grants and Targeted Grants), provides assistance to improve the teaching and learning of children in high-poverty schools to enable those children to meet challenging academic content and performance standards. Title I is the largest education program for elementary and secondary students who reside in low-income areas. Many local school districts incorporate education technology and training into their Title I programs.

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Eisenhower Professional Development Program (Title II)

The Eisenhower Professional Development Program (Title II of the Elementary and Secondary Education Act of 1965, as amended) was enacted in 1994 as part of the Improving America's School Act which supports professional development activities to improve teaching and learning. Under this program, funds are made available on a formula basis to state education agencies (SEAs), local education agencies (LEAs), state agencies for higher education (SAHEs), and nonprofit organizations (NPOs) to support and help shape state and local professional development activities. The reauthorized Eisenhower Program has a direct relation to systemic reform and student achievement that are tied to challenging state content and performance standards. The program expanded and modified its predecessor, the Eisenhower Mathematics and Science Education Program, to include all core subjects.

States may use funds under this program to provide professional development in the effective use of educational technology as an instructional tool for increasing student understanding of the core academic subjects. This includes efforts to train teachers in methods of achieving gender equity both in students' access to computers and other educational technology and in teaching practices used in the application of educational technology.

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Goals 2000

Goals 2000 is a program of support for comprehensive reform of education at state and local levels. This reform asks states and local communities to set challenging academic standards that all children need to attain to be productive citizens in the 21st century; align all facets of the education enterprise toward attainment of those standards; design assessments systems to determine if all children are attaining the high level of academic performance described in the standards; and focus on accountability for results in terms of that student performance.

As a major tool of instruction, technology can play a leading role in helping students reach the level of performance expected of them. Technology can also be used to help teachers manage their instruction, track student progress, and diagnose student needs. Finally, knowledge of technology itself is becoming a goal of instruction, crucial in preparing students for further education for entering the workforce.

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Innovative Education Program Strategies (Title VI)

Title VI of the Elementary and Secondary Education Act, as amended by the Improving America's Schools Act, is designed to: (1) support local educational reform efforts that are consistent with and support statewide reform efforts under the Goals 2000: Educate America Act; (2) support state and local efforts to accomplish the National Education Goals; (3) provide funding to enable state and local education agencies (LEAs) to implement promising educational reform programs; (4) provide a continuing source of innovation, and education improvement, including support for library services, instructional materials and technology; and (5) meet the special needs of at-risk and high-cost students.

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The Migrant Education Program

These formula grant programs go to state education agencies, which generally subgrant funds to local education agencies or non-profit community-based organizations, to improve educational opportunities for migrant students. Programs offered during the academic year and summer months focus on meeting the unique needs of migrant students to enable them to meet high academic standards. States may use funds to coordinate projects with similar programs and projects within the state and with other states to help reduce the negative effects caused by student mobility. Funds may also be used to acquire technologies and offer relevant training in order to enhance program effectiveness. Up to $4.5 million may be reserved from the total amount available each year to help improve program coordination within and between states.

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Office of Educational Research and Improvement

Star Schools Program

The Star Schools Program supports telecommunications partnerships to provide telecommunications equipment and programming to underserved students, including those living in rural and urban areas. Through support from the Star Schools Program, more than 50,000 teachers along with a host of administrators, parents, and policy makers have participated in staff development and community awareness activities produced via satellite, compressed video technology, fiber optics, videodisc, and microcomputer-based networks. Eligible partnerships may take the form of either: (1) A public agency or corporation established for the purpose of developing and operating telecommunications networks to enhance educational opportunities; or (2) a partnership that includes three or more of the following, at least one of which must be an agency as described in (a) or (b): (a) A local educational agency with a significant number of elementary and secondary schools that are eligible for assistance under ESEA Title I funds, or elementary and secondary schools operated or funded for Indian children by the Department of the Interior; (b) a state education agency; © an adult or family education program; (d) an institution of higher education or state higher education agency; (e) a teacher training center or academy; (f) a public or private agency with experience or expertise in the planning and operation of telecommunications networks or a public broadcasting entity; or (g) a public or private elementary or secondary school.

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Regional Educational Laboratories

The Department of Education's Regional Educational Laboratories work in partnership with educators and policy makers to test, adapt, and incorporate research findings into improved programs for schools and their students. Several of the regional labs publish resource guides that include information on activities of communities in their region. Some labs have made technology a particular focus; all labs will have access to each others' resources. The labs and resource guides can be an important source for local contacts. For a listing of the Regional Education Laboratories, see Appendix C.

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The Educational Resources Information Center (ERIC)

ERIC is a national information system designed to provide users with ready access to an extensive body of education-related literature. The ERIC database, the world's largest source of education information, contains more than 850,000 abstracts of documents and journal articles on education research and practice. ERIC can be accessed in a number of ways. It is available online via commercial vendors and public networks, on CD-ROM, or through the printed abstract journals, *Resources in Education* and *Current Index to Journals in Education*. Detailed information about accessing ERIC is contained in the U.S. Department of Education On-Line Resources section starting on page 23.

ERIC Clearinghouses select and prepare documents for the ERIC database and produce reports, summaries, digests, and other free and low-cost resources within their subject areas. The clearinghouses are organized around specific subject areas and each can provide specific information about technology in its area of education. A list of the ERIC Clearinghouses by subject area and their toll-free phone numbers is included below. Complete information about the clearinghouses is included in Appendix D.

Adult, Career, and Vocational Education	(800) 848-4815
Assessment and Evaluation	(800) 464-3742
Community Colleges	(800) 832-8256
Counseling and Student Services	(800) 414-9769
Disabilities and Gifted Education	(800) 328-0272
Educational Management	(800) 438-8841
Elementary and Early Childhood Education	(800) 583-4135
Higher Education	(800) 773-3742
Information and Technology	(800) 464-9107
Languages and Linguistics	(800) 276-9834
Reading, English, and Communication	(800) 759-4723
Rural Education and Small Schools	(800) 624-9120
Science, Mathematics, and Environmental Education	(800) 276-0462
Social Studies/Social Science Education	(800) 266-3815
Teaching and Teacher Education	(800) 822-9229
Urban Education	(800) 601-4868

Eisenhower Regional Mathematics and Science Education Consortia

The program supports grants to establish regional consortia that disseminate exemplary mathematics and science instructional material and provide technical assistance in the use of improved teaching methods and assessment tools to benefit elementary and secondary school students, teachers and administrators. The Office of Educational Research and Improvement (OERI) makes at least one award in each area served by the regional education laboratories. Eligible recipients include state educational agencies, school districts, institutions of higher education, regional laboratories and combinations of these entities. OERI currently funds 10 consortia, each of which offers services to schools and districts in a specific geographical area. The current consortia are listed in Appendix E.

Linda Jones, Team Leader
Eisenhower Federal Activities Program
555 New Jersey Avenue, NW
Washington, DC 20208-5645
(202) 219-2153
Fax: (202) 219-2053
e-mail: linda_jones@ed.gov

Eisenhower National Clearinghouse for Science, Mathematics and Technology

OERI's Eisenhower National Clearinghouse (ENC) collects, catalogues and disseminates K–12 curriculum materials and resources in mathematics and science. Its catalogue is available online through a toll-free number, (800) 362-4448, as well as through the Internet (enc.org.via Telnet or http://www.enc.org via WWW). ENC provides teachers with a variety of additional services, including a technical help desk and reference services, print publications, and 12 demonstration sites located throughout the nation. ENC collaborates with the Eisenhower Regional Consortia for Mathematics and Science Education.

Len Simutis, Director
Eisenhower National Clearinghouse for Science and Mathematics and Technology
The Ohio State University
1929 Kenny Road
Columbus, OH 43210-1079
(800) 821-5785 or (614) 292-7784
e-mail: simutis@enc.org

National Center for Education Statistics Survey on School Connectivity

The first national survey of school access to broad-band telecommunications and the Internet was completed in the fall of 1994. A second national survey began in October 1995. The next report will document the progress being made to connect schools and classrooms to the Internet.

Judy Carpenter
Office of Educational Research and Improvement
555 New Jersey Avenue, SW, Room 410-C
Washington, DC 20708-5651
(202) 219-1333
e-mail: judy_carpenter@ed.gov

Research and Development

Among other priorities, the Department's Office of Educational Research and Improvement (OERI) addresses the issues of technology's impact on teaching and learning, and in an interagency collaboration, has identified four high-priority areas. These are: research on learning and cognitive processes to improve the understanding of the learning process and how technology can best support that process; new models for evaluating learning and learning productivity; development of high-quality, affordable learning tools and environments for use in a variety of settings including schools, work places, and homes; and demonstrations of innovative technology and networking applications on how the National Information Infrastructure (NII) can be used for advanced instructional systems. Appendix F contains a listing of Research and Development Centers.

Carol B. Lacampagne, Senior Research Associate
Office of Educational Research and Improvement
555 New Jersey Avenue, NW, Room 513C
Washington, DC 20202
(202) 219-2064.
e-mail: carol_lacampagne@ed.gov

Ready-To-Learn Television

Ready-To-Learn Television supports development of educational television and instructional video programming for pre-school and elementary school children and their parents in order to promote the achievement of the National Education Goals. This grant to the Corporation for Public Broadcasting will develop new video programs for children with support materials for parents.

Joe Caliguro
Office of Educational Research and Improvement
555 New Jersey Avenue, NW, Room 508A
Washington, DC 20202
(202) 219-1496
e-mail: joe_caliguro@ed.gov

Telecommunications Demonstration Project for Mathematics

This national telecommunications-based project is designed to improve the teaching of mathematics and to help elementary and secondary teachers in preparing all students for achieving state content standards. Approximately 2,100 teachers of grades K–5 will participate through 69 public television stations in 34 states. Additional support is also given to develop local programs for technical support for Mathline teachers.

Adria White
Office of Educational Research and Improvement
U.S. Department of Education
555 New Jersey Avenue, NW
Washington, DC 20202
(202) 219-2181
e-mail: adria_white@ed.gov

Teacher Networking Projects

The Technology Education Program is designed to enhance curricula, classroom teaching and teacher professional development through online use of electronic teacher networks and shared knowledge. The teacher networks link teachers with curriculum and instruction specialists who can help teachers improve their teaching skills and knowledge of subject matter.

Tawanna Colbert
Office of Educational Research and Improvement
555 New Jersey Avenue, NW
Washington, DC 20202
(202) 219-2143
e-mail: tcolbert@inet.ed.gov

Fund for the Improvement of Education

The program provides funds to conduct nationally significant programs to improve the quality of education, assist all students to meet challenging state content standards, and contribute to the achievement of the National Education Goals. Such funds may be used to fund technology projects or program elements.

Beverly Farrar
Office of Educational Research and Improvement
Department of Education
555 New Jersey Avenue, NW
Washington, DC 20208-5654
(202) 219-1301
e-mail: beverly_farrar@ed.gov

Library Education and Training

The Library Education and Training program assists institutions of higher education and library organizations and agencies in the training or retraining of persons in areas of library specialization, particularly in areas of critical need, and establishes, develops and expands programs in new techniques of information acquisition, transfer and communication technology.

Louise Sutherland
Discretionary Library Programs Division
Office of Educational Research and Improvement
U.S. Department of Education
555 New Jersey Avenue, NW
Washington, DC 20202-5571
(202) 219-1315
e-mail: louise_sutherland@ed.gov

Library Research and Demonstration

This program awards grants and contracts for research and/or demonstration projects in areas of specialized services intended to improve library and information sciences practices. Prospective projects may include the promotion of economical and efficient information delivery, cooperative efforts related to librarianship, and developmental projects. These should also lead to the improvement of education in library and information science; the use of new technologies to enhance library services; and the dissemination of information derived from such projects.

Neal Kaske
Discretionary Library Programs Division
Office of Educational Research and Improvement
U.S. Department of Education
555 New Jersey Avenue, NW
Washington, DC 20208-5571
(202) 219-1871
e-mail: nkaske@inet.ed.gov

Improving Access to Research Library Resources

This library program promotes research and high-quality education throughout the United States by providing financial assistance to help major research libraries: (1) maintain and strengthen their collections and (2) make their holdings available to individual researchers and scholars outside their primary clientele and to other libraries whose users have need for research materials.

Chris Dunn
Office of Educational Research and Improvement
U.S. Department of Education
555 New Jersey Avenue, NW
Washington, DC 20208-5571
(202) 219-1315
e-mail: chris_dunn@ed.gov

Interlibrary Cooperation and Resource Sharing

The Interlibrary Cooperation program provides funds to plan and take steps leading to the development of cooperative networks; and to establish, expand, and operate local, regional, and interstate networks of libraries. These will provide for the systemic and effective coordination of the resources of school, public, academic, and special libraries and special information centers for improved services of a supplementary nature to the clientele served by each type of library or center. They will also develop the technological capacity of libraries for interlibrary cooperation and resource sharing and allow for the development of a statewide preservation plan.

Robert Klassen, Library Programs
Office of Educational Research and Improvement
U.S. Department of Education
555 New Jersey Avenue, NW
Washington, DC 20208-5571
(202) 219-1303
e-mail: robert_klassen@ed.gov

Public Library Services

Public Library Services provides formula grant funding for thirteen categories of public library assistance, two of which pertain to technology: making library services more accessible to individuals who, by reason of distance, residence, disability, age, literacy level, or other disadvantage, are unable to receive the benefits of public library services; and increasing public library services or access to these services through effective use of technology.

Robert Klassen, Library Programs
Office of Educational Research and Improvement
555 New Jersey Avenue, NW
U.S. Department of Education
Washington, DC 20202-5571
(202) 219-1303
e-mail: robert_klassen@ed.gov

Public Library Construction and Technology Enhancement

Provides grants to states for facilities and technology enhancements to improve the provision of public library services. States may approve local projects for construction, remodeling, or alteration of existing buildings. Funds may also be used for technology enhancement purposes apart from any construction project. Contact your state library administrative agency for further information.

Donald Fork
U.S. Department of Education
Office of Educational Research and Improvement
555 New Jersey Avenue, NW
Washington, DC 20208
(202) 219-1312
e-mail: donald_fork@ed.gov

Small Business Innovation Research Program (SBIR)

Seeks to help meet federal research and development needs and to stimulate technological innovation in small businesses, while requiring private sector commercialization of developed products. The Department of Education's SBIR program has focused on the development of products such as software programs that use computers and other high-tech equipment for teaching and learning basic skills, science and foreign languages. It also provides the physically disabled with opportunities to function more easily in society.

John Christensen
Office of Educational Research and Improvement
555 New Jersey Avenue, NW, Room 602F
Washington, DC 20202
(202) 219-2065
e-mail: john_christensen@ed.gov

Office of Postsecondary Education (OPE)

Minority Science Improvement

The Minority Science Improvement program is designed to create long-range improvement in science and engineering education at predominantly minority institutions of higher education and to increase the participation of underrepresented ethnic minorities in scientific and technological career fields. Under the program, awards may be made to public and private, nonprofit minority institutions, nonprofit science-oriented organizations, professional scientific societies, and all nonprofit accredited colleges and universities providing service to a group of eligible minority institutions or providing in-service training for project directors, scientists, or engineers from eligible minority institutions.

Lawrence Grayson, Division Director
Higher Education Incentive Programs
U.S. Department of Education
Room C-80, Portals Building
1250 Maryland Avenue, SW
Washington, DC 20202
(202) 260-3235
e-mail: lawrence_grayson@ed.gov

Office of Special Education and Rehabilitative Services

Demonstration and Innovation Projects of National Significance in Assistive Technology for Individuals with Disabilities

This program supports model service delivery demonstrations, research and development, and direct loan demonstration projects to enhance the provision of technological devices and services to individuals of all ages and disabilities.

Carol G. Cohen
National Institute on Disability and Rehabilitation Research
U.S. Department of Education
330 C Street, SW
Washington, DC 20202-2572
(202) 205-5666
e-mail: carol_cohen@ed.gov

Technology-Related Assistance for Individuals with Disabilities

The Technology-Related Assistance for Individuals with Disabilities Act supports consumer-driven statewide systems of technology-related assistance. Services provided include: service providers, public awareness programs, information and referral systems, and outreach to disability organizations and business groups. It also supports the development of a uniform, national classification system for assistive technology devices and services, and policy analysis leading to systemic change and the removal of barriers to acquiring assistive technology.

Carol Cohen, Team Leader
National Institute on Disability and Rehabilitative Research
Office of Special Education and Rehabilitative Services
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Washington, DC 20202
(202) 205-5666
e-mail: carol_cohen@ed.gov

Media and Captioning Services for Individuals with Disabilities

This program maintains a free loan service of captioned films for individuals who are deaf or hard of hearing and instructional media for the educational, cultural, and vocational enrichment of individuals who are disabled. The program provides for the acquisition and distribution of media materials and equipment; provides contracts and grants for research into the use of media and technology; and trains teachers, parents and others to use media and technology.

Ernest Hairston
Division of Educational Services
Office of Special Education Programs
U.S. Department of Education
330 C Street, SW
Washington, DC 20202
(202) 205-9172
e-mail: ernest_hairston@ed.gov

Special Education Technology Media and Materials

The Technology Media and Materials Program supports a variety of research and development activities to develop, examine, and market technology that serves children with disabilities. The program's purpose is to advance the use of innovative technology, media, and materials in improving educational results for children with disabilities.

Ellen Schiller, Chief
Directed Research Branch
Office of Special Education and Rehabilitative Services
330 C Street, SW, Room 3523
Washington, DC 20202
(202) 205-8123
e-mail: ellen_schiller@ed.gov

Training and Public Awareness Projects in Assistive Technology for Individuals with Disabilities

This program supports the following objectives: preparing personnel to provide technical assistance and administer programs; developing and implementing consumer responsive statewide programs of technology-related assistance to individuals with disabilities; and recognizing and building awareness of the importance of assistive technology devices and services for individuals with disabilities.

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National Institute on Disability and Rehabilitative Research
Office of Special Education and Rehabilitative Services
U.S. Department of Education
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Washington, DC 20202-2572
e-mail: carl_cohen@ed.gov

Office of Vocational and Adult Education

The Carl D. Perkins Vocational and Applied Technology Education Act (PL 101-392)

Under this act, federal funds are made available to help provide vocational technical education programs and services to youth and adults. The vast majority of funds appropriated under the Perkins Act are awarded as grants to state education agencies. These State Basic Grants are allotted to states according to a formula based on states' populations in certain age groups and their per capita income.

Only State Boards for Vocational Education are eligible to apply for State Basic Grants. The distribution of grant funds within a state is directed to priority items established by the state in accordance with an approved state plan for vocational-technical education. Local education agencies and postsecondary institutions are eligible recipients for subgrants.

According to the National Assessment of Vocational Education study, the most frequent uses of funds included: occupationally relevant equipment, vocational curriculum materials, materials for learning labs, curriculum development or modification, staff development, career guidance and counseling activities, efforts for academic-vocational integration, supplemental services for special populations, hiring vocational staff, remedial classes, and expansion of Tech Prep programs.

Vocational technical education is changing. Specifically, it now uses more and higher technology and incorporates more of school-based and work-based learning. Vocational education personnel and program participants also have access to computerized occupational information to make program decisions and career choices.

Ron Castaldi, Chief
State Administration Branch
Division of Vocational Technical Education
U.S. Department of Education
330 C Street, SW, Room 4321
Washington, DC 20202
(202) 205-9444

National Vocational Education Research

The Office of Vocational and Adult Education funds the National Center for Research in Vocational Education, six curriculum coordination centers, and special research projects.

Jackie Friederich or Pariece Wilkins
Division of National Programs
Office of Vocational and Adult Education
U.S. Department of Education
330 C Street, SW
Washington, DC 20202-7242
(202) 205-9071 or (202) 205-9673
e-mail: jackie_friederich@ed.gov or pariece_wilkins@ed.gov

Demonstration Projects for the Integration of Vocational and Academic Learning

Under this program, project funding will be used to develop, implement, and operate programs using different models of curricula. New curricula will integrate vocational and academic learning by designing integrated vocational and academic courses, providing in service training for teachers of vocational education, and disseminating information regarding effective integrative strategies to other school districts through the National Diffusion Network.

Pariece M. Wilkins
Office of Vocational and Adult Education
U.S. Department of Education
330 C Street, SW
Washington, DC 20202-7242
(202) 205-9673
e-mail: pariece_wilkins@ed.gov

Division of Adult Education and Literacy Clearinghouse

The Adult Education and Literacy Clearinghouse links the adult education community with existing resources in adult education. The clearinghouse has numerous resources available for adult educators seeking to use technology to enhance learning. The DAEL Clearinghouse has an automated document request line. FactsLine provides information 24 hours a day and can be accessed at (202) 401-9570.

Tammy Fortune or Rick Gallmon
Division of Adult Education and Literacy Clearinghouse
330 C Street, SW
Washington, DC 20202-7240
(202) 205-9996
Fax: (202) 205-8973
e-mail: tammy_fortune@ed.gov or rickie_gallmon@ed.gov

Vocational Education–Basic Grants to States

This formula grant program provides funds to make the United States more competitive in the world economy by developing more fully the academic and occupational skills of all segments of the population. This is to be achieved principally through concentrating resources for improving educational programs leading to the academic and occupational skills needed to work in a technologically advanced society.

Richard DiCola
Division of Vocational-Technical Education
Office of Vocational and Adult Education
U.S. Department of Education
330 C Street, SW
Washington, DC 20202-7323
(202) 205-9441
e-mail: richard_dicola@ed.gov

U.S. Department of Education On-Line Resources

U.S. Department of Education's Public World Wide Web/Gopher/FTP site

Teachers with access to the Internet can tap a rich collection of U.S. Department of Education information at ED's public World Wide Web/Gopher/FTP site, including:

- fact sheets and other information on GOALS 2000, the Elementary and Secondary Education Act (IASA), School-to-Work, and the family partnership;
- collections of academic standards;
- announcements of the release of new publications and data sets;
- press releases, funding opportunities, and event calendars;
- general information about the Department;
- searchable ED staff directory, directories of effective programs, and directory of education-related information centers;
- descriptions of ED programs;
- research findings and syntheses;
- full-text publications for teachers, parents, and researchers;
- statistical tables, charts, and data sets; and
- pointers to all public Internet resources at Research & Development Centers, Regional Laboratories, ERIC Clearinghouses, and other ED-funded institutions.

Internet users can access the information using a World Wide Web client such as NCSA Mosaic (URL=**http://www.ed.gov**), a Gopher client (gopher to **gopher.ed.gov** or select **North America -->USA-->General-->U.S. Department of Education**), or an FTP client (ftp to **ftp.ed.gov**).

ED Board Electronic Bulletin Board

The Department's Grants and Contracts Service operates ED Board, which provides on-line access to information about the Department's programs, current funding opportunities, contracting forecasts, and information about doing business with the Department. Computer users can access ED Board at any hour using a modem (at speeds up to 2400 baud) and by calling **(202) 260-9950** and via the Internet through FedWorld or the Department of Education's web server. ED Board is now accessible via the Internet at http://gcs/ed/gov.

OERI Toll-Free Electronic Bulletin Board

Much of the information that is available on the Department's Internet site is also available to those who don't yet have Internet access but who can dial into a bulletin board. The Office of Educational Research and Improvement electronic bulletin board provides on-line access to statistical data, research findings, information about Department of Education programs, and, in some cases, full texts of departmental documents. Computer users can retrieve this information at any hour using a modem (at speeds up to 14400 baud) and by calling **1-800-222-4922**. The local direct number is **(202) 219-1511**.

AskERIC

The ERIC Clearinghouse on Information and Technology, one of the 16 clearinghouses in the ERIC national information system, sponsored by the Office of Educational Research and Improvement, runs an Internet-based question-answering service called "AskERIC." Teachers, administrators, parents, and community members with education questions may send them via e-mail to askeric@ericir.syr.edu. A response is provided within 48 hours. AskERIC has also developed computerized resource collections of frequently asked questions, lesson plans, short summaries of recent research, and literature searches on popular topics.

AskERIC Virtual Library

The AskERIC Virtual Library is an Internet site of selected resources for education and general interest. As a Sun SITE, AskERIC has the resources to use sound, video, and multimedia resources. Some of the contents include more than 700 lesson plans, access to the ERIC database and full-text ERIC Digests, AskERIC InfoGuides (topical guides to Internet and ERIC resources), archives of education-related listservs, and remote access to other Internet sites. Access the AskERIC Virtual Library at URL=http://www.ericir.syr.edu or gopher to gopher.ericir.syr.edu; or select North America->USA->General-> AskERIC; or telnet to ericir.syr.edu, anonymous, and for the password, enter your E-mail address.

National Parent Information Network

The National Parent Information Network (NPIN) is the largest Internet resource for parents, providing high-quality information devoted to child development, child care, education and parenting. NPIN publishes an online newsletter for parents that contains timely information on issues of concern to parents, special reports on children by age group, and documents on relevant issues from a variety of sources. Access NPIN at: http://ericps.ed.uiuc.edu/npin/npinhome.html.

Eisenhower National Clearinghouse for Mathematics and Science Education

This clearinghouse at Ohio State University provides access for K–12 educators to a growing collection of mathematics and science material and information, such as program or curriculum resources, federal funding, evaluations, and guides. An electronic catalog is available on CD-ROM and online at URL=http://www.enc.org. Contact Len Sumutis, (614) 292-1373.

Regional Educational Laboratory Network

Almost every one of the ten Regional Educational Laboratories maintains a World Wide Web or gopher site containing regional information and collections of research-based information designed for use by educational practitioners. Access the Lab Network through any of the labs or through a central entry point maintained by the Northwest Lab, using a World Wide Web Client such as NCSA Mosaic (URL=http://www. nwrel.org) or a gopher client (gopher to gopher.nwrel.org port 5000).

U.S. Department of Agriculture (USDA)

The Agricultural Telecommunications Program

This program provides funding for the use of telecommunications in rural and urban areas, and may fund proposals if done jointly with land grant institutions.

Cathy Bridwell
Agricultural Communications Program
U.S. Department of Agriculture
14th and Independence Avenue, SW
Washington, DC 20250
(202) 720-6084
e-mail: cbridwell@reeusda.gov

National Network for Action in Science and Technology

The National Network creates a stronger link of land-grant colleges and universities that provide technical assistance to the federally funded sites for children, youth, and families at-risk. The network provides trainers with the information and skills necessary to return to their local communities and train others to implement science and technology curricula and processes.

Julie Chapin, Coordinator
National Network for Action and Science Technology
6H Berkey Hall
Michigan State University
East Lansing, MI 48824-1117
(517) 355-0180
Fax: (517) 355-6748
e-mail: Chapin@MSUCES.CANR.MSU.EDU

Institution Capacity-Building Grants

This program provides funds to build the research and teaching capacities of the 1890 land-grant institutions and Tuskegee University through cooperative programs with federal and nonfederal entities. It provides for a variety of teaching and research grants, including development of technology delivery systems.

Richard Hood, Director
USDA CSREES-SERD
Higher Education Programs, Stop 2251
14th and Independence Avenues, SW
Washington, DC 20250
(202) 720-1973
Fax: (202) 720-2030
rhood@reeusda.gov

Distance Learning and Medical Link Grants

Distance Learning and Medical Link Grants provide funds to encourage and improve the use of telecommunications, computer networks, and related advanced technologies to provide educational and medical benefits to people living in rural areas.

Blaine D. Stockton, Assistant Administrator
Economic Development and Technical Services
Room 4025, South Building
14th and Independence Avenues, SW
Washington, DC 20250-1500
(202) 720-9545
e-mail: bstockton@rususda.gov

The Rural Utilities Service (RUS) Distance Learning Grant Program

Since 1993 this program has provided 90 grants totaling $27.5 million to rural schools, hospitals and medical clinics in 39 states. The RUS Distance Learning grant program provides grants directly to rural schools, libraries, and other educational institutions for the development of advanced telecommunications systems.

Larry Bryant, Chief
Southeast Area Operations Branch
Rural Utilities Service
Room 2868, South Building
14th and Independence Avenues, SW
Washington, DC 20250
(202) 690-4640
e-mail: lbryant@rus.usda.gov
web site: http://www.usda.gov/rus/dlml.htm

The Rural Utilities Service Telecommunications Loan Program

RUS financing is used by rural telecommunications providers to build new and modernize existing telecommunications networks, connect new subscribers in unserved areas, and provide the transmission and switching facilities necessary for economic development, distance learning and telemedicine applications, and Internet access.

Bob Peters, Assistant Administrator
Rural Economic and Community Development
U.S. Department of Agriculture
14th and Independence Avenues, SW
Washington, DC, 20250
(202) 720-9554
e-mail: rpeters@rus.usda.gov

Scientific and Technical Cooperation

Promotes international cooperation in agriculture and forestry to obtain mutual benefit through short-term, four-week exchange visits of U.S. and foreign scientists.

Whetten Reed, Director
Research and Scientific Exchanges Division
Office of International Cooperation and Development
U.S. Department of Agriculture
14th and Independence Avenues, SW
Washington, DC 20250-1084
(202) 690-4872
e-mail: wreed@ag.gov

The Department of Commerce

The Public Telecommunications Facilities Program (PTFP)

PTFP awards matching grants to noncommercial entities to purchase telecommunications equipment with the stipulation that the equipment be used for educational or cultural purposes. PTFP also provides smaller grants to assist these entities in planning for the purchase and use of telecommunications equipment.

Dennis Connors, Director
Public Telecommunications Facilities Program
National Telecommunications and Information Administration
U.S. Department of Commerce, Room 4625
14th and Constitution Avenues, NW
Washington, DC 20230
(202) 482-5802
e-mail: dconnors@ntia.doc.gov
Home page: http://www.ntia.doc.gov/otiahome/otiahome.html

The Telecommunications and Information Infrastructure Applications Program (TIIAP)

TIIAP awards matching grants to state and local governments and nonprofit organizations for the planning and construction of telecommunications networks for the provision of educational, cultural, health care, public information, public safety and other social services.

Stephen Downs, Director
National Telecommunications and Information Administration
U.S. Department of Commerce, Room 4096
14th and Constitution Avenues, NW
Washington, DC 20230
(202) 482-5802
e-mail: sdowns@ntia.doc.gov (or) tiiap@ntia.doc.gov
home page: http://www.ntia.doc.gov/otiahome/otiahome.html

Undersea Research

This program provides funds to place researchers safely undersea to conduct studies in support of National Oceanic and Atmospheric Administration (NOAA) and national science requirements.

Barbara Moore, Director
Office of Undersea Research
National Oceanic and Atmospheric Administration
1335 East-West Highway
Silver Spring, MD 20910
e-mail: moore@rdc.noaa.gov
home page: http://www.ucc.uconn.edu/~www.nurc/nurp.html
(301) 713-2427

Department of Defense (DOD)

Defense Technology Conversion, Reinvestment, and Transition Assistance–The Technology Reinvestment Project (TRP)

TRP is a six-agency technology investment effort that includes the Departments of Defense, Commerce, Energy, and Transportation, the National Science Foundation, and NASA. The program requires participation in partnerships and focuses on cost sharing between the partnerships, assisting small businesses and defense-dependent businesses. TRP seeks to develop dual-use technologies, to deploy manufacturing and technology assistance to small firms, and to establish education and training programs that enhance U.S. manufacturing skills and target displaced defense industry workers.

H. Lee Buchanan, Director
Technology Reinvestment Project
Advanced Research Project Agency
3701 North Fairfax Drive, 7th Floor
Arlington, VA 22203-1714
(703) 696-2237 or 1-800-DUAL-USE
e-mail: Dual-Use@arpa.mil

Department of the Army

National Science Center

The National Science Center, with its multifaceted programs, is designed to increase interest in science, math, and technology among students, improve the skills of teachers, and provide math and science education support in the classroom. The center offers hands-on workshops/camps for students and teachers in science, math, electronics and computers nationwide. Portable planetariums for instruction in space science, astronomy, geography, and biology are available on loan to teachers that have been certified through the center's comprehensive training program. In addition, the National Science Center operates a Discovery Center which offers school groups and the general public interactive experiences with scientific exhibits. The center operates mobile versions of the Discover Center that travel nationwide. The National Science Center also reaches out nationally with satellite teleconference programs on science education. The center's Science-by-Mail program encourages pen-pal relationships between students and scientists.

George J. Fry, Jr.
National Science Center
Attention: ATZH-NSC-D
Building 25722
Fort Gordon, GA 30905-5689
(706) 791-7621
e-mail: fryg@gordon-nsc1.army.mil
home page: www.nsc.gordon.army.mil

U.S. Marine Corps

Marine Corps Satellite Education Network (MCSEN)

Service members face many challenges when trying to take education classes in their off-duty hours. Primary Change of Station for personnel, Temporary Assignment Duties, and work schedules make it difficult to complete traditional courses and degree programs. In response to the need for flexibility, the Marine Corps has initiated a "virtual" solution via a technological medium called the Marine Corps Satellite Education Network (MCSEN). MCSEN is a real-time communication system that allows audiovisual interaction between classrooms located on Marine bases around the world. For example, if a Marine who is enrolled in a MCSEN- transmitted course at Camp Lejeune is sent TAD to Camp Pendleton, the Marine will be able to participate in the regularly scheduled class via MCSEN--just as if the Marine had never left Camp Lejeune. Marines now have the opportunity to complete degrees with the original school regardless of changes in duty station. The goal of the program is to create a worldwide Marine Corps Campus.

Catherine Mahoney
MCSEN Program Manager
Voluntary Education Programs
U.S. Marine Corps
2 Naval Annex - Code MHF-50
Washington, DC 20380-0001
(703) 696-2044
e-mail: mahoney@mqg-smtp3.usmc.mil

U.S. Navy

Academic Skills Learning Centers

The Navy has found that between 25 and 30 percent of the sailors coming into the service, with or without high school diplomas, are deficient in basic academic skills (primarily basic mathematics, language arts and writing). In order to rectify this situation, the Navy is establishing Academic Skills Learning Centers worldwide at all major Navy installations. The Academic Skills Learning Centers will provide software on CD-ROM. This is a fully integrated learning system which incorporates testing and placement, and tracks the progress of each participant. Each center is staffed by a full-time facilitator who is on hand to assist whenever necessary. Initial experience with these centers is most positive. Sailors are raising their skill levels dramatically and thus qualifying for Navy occupational fields for which they were not originally eligible.

Frances Kelly
Director
Voluntary Educational Services
Bureau of Navy Personnel
Department of the Navy
2 Navy Annex
Washington, DC 20370-6000
(703) 693-1749
e-mail: p60e@bupers.navy.mil

Program for Afloat College Education

Over the past twenty years, the United States Navy has provided sailors deployed on U.S. ships, an opportunity to continue their education. From the mid-70s to the mid-80s, this was accomplished by having films covering selected subjects teach courses. However, not all ships could accommodate these formats and only a portion of the ships could provide sufficient space for civilians teaching the courses. By the mid-80s it was clear that the Navy would have to investigate other delivery systems for providing access to education. Computer technology provided the best answer. Now thousands of sailors in the Persian Gulf, in the Pacific, and in the Mediterranean are taking college courses via computer and interactive video. It is entirely possible for a sailor to complete an associate degree at sea. The Navy is now working to make it possible for sailors to complete a baccalaureate degree under the same circumstances.

Frances Kelly, Director
Voluntary Educational Services
Bureau of Navy Personnel
Department of the Navy
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The Department of Energy (DOE)

The Department of Energy's 10 national laboratories and 30 specialized technology centers and research facilities provide educational experiences for students, training, and curriculum materials for pre-service and in service teachers, and literacy programs for the general public. DOE also supports statewide systemic initiatives to reform math, science and technology education in 13 states. DOE serves hundreds of thousands of teachers and students each year through science and technology education programs. DOE's technology offerings range broadly from equipment loan and donation programs to long-term research studies on the overall effectiveness of specific educational technologies for classroom instruction.

Adventures in Supercomputing

Adventures in Supercomputing is part of the federal High Performance Computing and Communications Program. Summer institutes are offered to teams of high school teachers to facilitate the development of computational science courses.

Ann Thompson
North 108 A Lagomarcino
Iowa State University
Ames, Iowa 50011
(515) 294-5287
Fax: (515) 294-6206
e-mail: eat@iastate.edu

Chicago Educational Networking Consortium

This program is a joint collaboration between the Illinois State Board of Education and Argonne National Laboratory to provide training and low-cost Internet access for all Illinois teachers.

Sam Bowen
Division of Educational Programs
Argonne National Laboratory
Argonne, Illinois 60439-4845
(610) 252-3228
Fax: (610) 252-3193
E-mail: bowen@dep.anl.gov

Computational Science Applications in Manufacturing (CSAM)

This workshop provides training for high school students and teachers in advanced technology and techniques used in computational science as they pertain to manufacturing.

Richard A. Bennett
Allied Signal Inc.
D/553, 2A45, P.O. Box 419159
Kansas City, MO 64141-6159
(816) 997-5937
Fax: (816) 997 7259
e-mail: rbennett@kcp.com
Home page: http://floyd.os.kcp.com/home/outreach/

Hands-On Universe

This program makes cutting-edge astrophysics research tools and technologies available to a wide audience via microcomputers and electronic networks. Participants can request astronomical images created from the laboratory's professional-grade telescopes. The laboratory is developing a number of resources for teacher professional development.

Carl Pennypacker
Lawrence Berkeley Laboratory
One Cyclotron Road, Building 938C
Berkeley, CA 94720
(510) 486-7429
Fax: (510) 486-6660
Home page: http://www.LBNL.gov/education/HOU.html.

Human Genome Project (HGP)

The HGP Ethical, Legal and Social Issues in Science (ELSI) provides information about a variety of DOE Human Genome Program educational programs and activities. The Ethical, Legal and Social Issues in Science is an educational internet outreach project.

Eileen Engel
Lawrence Berkeley National Laboratory
One Cyclotron Road, Building 938C
Berkeley, CA 94720
e-mail: edengel@lbl.gov
(510) 486-5719

The Laboratory Compact

The Laboratory Compact links the Department of Energy national laboratories and Department of Education regional education laboratories in an effort to develop science, mathematics, and educational technology programs for urban and rural schools.

Roland Otto
Lawrence Berkeley Laboratory
One Cyclotron Road, Building 938C
Berkeley, CA 94720
(510) 486-5325
Fax: (510) 486-6660
e-mail: rjotto@lbl.gov

Microworlds

Microworlds is an interactive science magazine for middle school and high school students. Each article has learning activities to help students understand basic concepts related to the research described.

Jane Cross
Lawrence Berkeley Laboratory
One Cyclotron Road, Building 938C
Berkeley, CA 94720
(510) 486-4362
Fax: (510) 486-6660
e-mail: jcross@lbl.gov

National Education Supercomputer Program (NESP)

In these summer workshops, students and teachers use a Cray Y-MP supercomputer dedicated to education.

Brian Lindow
Manager of Educational Technology Programs
Lawrence Livermore National Laboratory
P.O. Box 808
Livermore, CA 94550
(510) 422-6080
Fax: (510) 423-0418
e-mail: lindowl@llnl.gov

National Teacher Enhancement Program (NTEP)

NTEP is a multilaboratory 3-year program for teams of pre-college teachers. The program improves K–12 science instruction by creating a cadre of lead teachers who will serve as role models and mentors for their colleagues and who will be district leaders in systemic reform initiatives. NTEP is being held in the following laboratories:

Brookhaven National Laboratory (BNL)

This program is centered on a 3-week summer Energy and Technology Institute offering: (1) basic science content; (2) a hands-on introduction to technological applications of this content; (3) an "immersion" experience in constructive learning through mission-oriented team technology projects; and (4) opportunities for elementary teachers and technology teachers to collaborate in developing such activities for students.

Karl Swyler
Science Education Center, Building 438
Brookhaven National Laboratory
P.O. Box 5000
Upton, NY 11973
(516) 344-7171
Fax: (516) 344-5832
e-mail: swyler@bnl.gov

Lawrence Berkley National Laboratory

The NTEP workshop at the Lawrence Berkley National Laboratory employs a teaching-learning model which parallels the scientific method and immerses the teachers in a real-life, hands-on scientific project. This approach exemplifies ways in which scientists uncover knowledge and solve problems. When practiced in the classroom, this approach goes beyond the bounds of the science class and encourages students to take a more meaningful look at their world. The overall scientific focus is environmental studies.

Marva Wilkins
Lawrence Berkeley National Laboratory
Center for Science and Engineering Education
Building 90, Room 1070, 1 Cyclotron Road
Berkley, CA 94720
(510) 486-5640
e-mail: mowilkins@lbl.gov

Los Alamos National Laboratory

This is a 3-year science enhancement and leadership program, for teachers of grades 4–6. The program provides teacher teams with science content, process, and leadership skills through hands-on curriculum-building workshops and summer institutes. Laboratory scientists and education professionals share their expertise and advice with participants, particularly in the life and physical sciences. During the three years, participants receive assistance in taking the new knowledge and experience back to their schools to become leaders in the implementation of activity-based science programs.

Rick Alexander, Program Coordinator
Human Resources–Science Education and Outreach Group
Los Alamos National Laboratory
P.O. Box 1663, Mail Stop P278
Los Alamos, NM 87545
(505) 667-1919
Fax: (505) 665-4093
e-mail: alexander_rick@lanl.gov

National Renewable Energy Laboratory (NREL)
This lab supports a National Teacher Enhancement Program which offers an opportunity for a teacher (or teams of teachers) to conduct scientific investigations in a Department of Energy Laboratory with guidance from scientists/mentors. Teachers can then apply their lab experience to the development of a classroom plan that transforms students from passive learners to active problem solvers.

Linda Lung, Education Support Administrator
National Renewable Energy Laboratory
Building 15/3, 1617 Cole Boulevard.
Golden, CO 80401-3393
(303) 275-3080
linda_lung@nrel.gov

Princeton Plasma Physics Laboratory
"Global Energy and Environmental Solutions" is a 3-year teacher institute designed for science and mathematics teachers of grades 5-8, and features an integrated mathematics, science, and technology curriculum, as well as assessment techniques and leadership skills.

Diane Carroll, Science Education Program
Princeton University Plasma Physics Laboratory
P.O. Box 451
Princeton, NJ 08543
(609) 243-2107
e-mail: dcarroll@pppl.gov

Sandia National Laboratory, California
LASER (Leadership Academy for Science Education Reform) is a 3-year institute for teacher leaders scheduled to begin in the summer of 1995. It was planned in partnership with the California Science Implementation Network (CSIN), and the Lawrence Hall of Science (LHS), a national leader in science education programs and pedagogy. The program is designed to increase scientific knowledge and familiarity with science instructional materials, improve and update teaching methods that emphasize integrated curriculum and hands-on learning, increase leadership skills, and foster a supportive environment for teachers involved in the program.

Judith Hurtz, Program Administrator
Sandia National Laboratories
7011 East Avenue, MS 9904
P.O. Box 969
Livermore, CA 94551
(510) 294-2703
Fax: (510) 294-1526
E_Mail: jhurtz@Sandia.gov

Newton BBS

This electronic bulletin board is located at Argonne National Laboratory. It provides K–12 science teachers and students a means by which they may contact scientists and other practicing teachers and researchers. The BBS is free to those who provide the requested information. NEWTON is open to anyone who shares an interest in knowing and practicing good science. Internet E-mail is available on request for registered teacher users.

Sam Bowen
Division of Educational Programs
Argonne National Laboratory
Argonne, Illinois 60439-4845
(610) 252-3228
Fax: (610) 252-3193
e-mail: bowen@dep.anl.gov

Contemporary Physics Education Project (CPEP)

Contemporary Physics Education Project (CPEP) is a national organization of physicists and teachers that creates and provides educational products for high school and college students, and for other physics fans.

Roland Otto
Lawrence Berkeley Laboratory
One Cyclotron Road, Building 938C
Center for Science and Engineering Education
Berkeley, CA 94720
(510) 486-5325
Fax: (510) 486-6660
rjotto@lbl.gov

The Particle Adventure

The Particle Adventure is an interactive tour of the inner workings of the atom and the tools for discovery. The interactive tour is an education adventure aimed at high school students. It is published by the Contemporary Physics Education Project (CPEP).

Michael Barnett
Lawrence Berkeley Laboratory
One Cyclotron Road, Building 938C
Center for Science and Engineering Education
Berkeley, CA 94720
(510) 486-5650
Fax: (510) 486-6660
e-mail: barnett@lbl.gov
home page: http://pdg.lbl.gov/cpep.html

Science and Technology Inquiry Partnerships

STIP provides a series of phased workshops designed to prepare teachers to become partners in the systemic change process, and allowing them to develop inquiry-based curricula for science and technology in order to implement this mode of instruction.

Eileen Vergino
Education Programs
Lawrence Livermore National Laboratory
P.O. Box 808, L-428
Livermore, CA 94550
(510) 422-3907
home page: http://ep.lnl.gov

Science at Home

Science at Home workshops partner teachers, parents, and students to help improve scientific literacy and to promote scientific curiosity through fun, easy-to-do science activities.

Denis Guild
Los Alamos National Laboratory
P.O. Box 1663, STB/SE MS F671
Los Alamos, NM 87545
(505) 667-8680
Fax: (505) 665-6871
home page: http://www.education.lanl.gov

Standard Model of Fundamental Particles and Interactions

This program has sponsored production and distribution of an instructional packet through Lawrence Berkeley Laboratory and the Stanford Linear Accelerator Center to provide teachers with methods for presenting up-to-date ideas on quarks and leptons. To order the kit, which costs $9.00, order #71957-40 and to order an updated wall chart to accompany the kit, order # 71957-00 and enclose $17.00. Add 10% for shipping and handling. To order, contact:

Science Kit & Boreal Laboratories
777 East Park Drive
Tonawanda, NY 14150-6784
(716) 874-6020
home page: http://sciencekit.com

Summer Teacher Enhancement Program (STEP)

These 4-week summer institutes expose teachers to cutting-edge science in specific content areas and show teachers how to incorporate what they have learned into the classroom. Topics include materials, environmental and earth sciences, physics, and forensics. Math, science and technology teachers may apply to these programs at the following laboratories:

Argonne National Laboratory

This is a 4-week intensive summer course on the utilization of instrumentation based on a multidisciplinary theme of forensics. Follow-up activities include visits and an equipment loan program from Argonne National Laboratory's Instructional Van.

Harold Myron, Program Leader
Division of Educational Programs
Argonne National Laboratory
9700 South Cass Avenue
Argonne, IL 60439
(708) 252-3380
Fax: (708) 252-2193
e-mail: harold_myron@qmgate.anl.gov

Oak Ridge National Laboratory (ORNL)

Manufacturing Opportunities through Science and Technology (MOST) is a teacher development program for middle and high school science, mathematics, technology and vocational education teachers as well as administrators and guidance counselors. The purpose of MOST is to expand content knowledge and career awareness, enhance pedagogical skills, and develop teaching materials for transfer to the classroom in the area of manufacturing. Participant teams include administrators and/or guidance counselors, and teachers from different content areas including both academic and vocational subjects.

Barbara Summers
Oak Ridge National Laboratory
Office of Science Education
105 Mitchell Road, MS-6496
Oak Ridge, TN 37831-6496
(423) 241-3705
e-mail: summersbg@ornl.gov

Pacific Northwest Laboratory

The National Teachers Institute in Materials Science and Technology Teacher Training brings together teams of teachers and administrators to work with PNL researchers in materials, science, and technology. The institute combines the academic disciplines of chemistry, physics, and engineering to create a materials science and technology (MST) course. The Institute covers the fundamentals of ceramics, glass, metals, polymers, and composites. Teams enhance their knowledge of the nature and behavior of materials and take part in hands-on activities, demonstrations, laboratory experiences, industry tours, and long-term projects.

Karen Wieda
Battelle Pacific Northwest National Laboratory
P.O. Box 999, MS K1-22
Richland, WA 99352
(509) 375-3811
kj_wieda@pnl.gov.

SUPER! (Science Understanding Promotes Environmental Responsibility)

SUPER! is a professional development program for middle and high school teachers. Scientific research being conducted at Sandia forms the basis of the science content for this program which examines the science behind environmental issues. Activities include an intensive 3-week summer institute and year-round follow-up communities to advance scientific literacy by combining state-of-the-art science, innovative teaching strategies, and effective leadership skills.

Nancy Wilson
Sandia National Laboratories
P.O. Box 969
Livermore, CA 94551
(510) 294-1502
nwilson@sandia.gov

Technology Instructional Laboratory

The Technology Instructional Laboratory helps students and faculty conduct experiments using research-grade instrumentation in spectroscopy and x-ray florescence, and analyze elemental constituents using various analytical techniques.

Dr. Harold Myron, Program Leader
Division of Educational Programs
Argonne National Laboratory
9700 South Cass Avenue
Argonne, IL 60439
(708) 252-3380
Fax: (708) 252-2193
e-mail: harold_myron@qmgate.anl.gov

Teacher Environmental Assessment and Modeling (TEAM)

The TEAM program is a summer institute designed for high school science, math, computer, or technology teachers. Participants in the TEAM program learn how to facilitate student water quality experiments. Teachers from New Mexico, southern Colorado, and western Texas may apply.

David Bones, TEAM program coordinator
Human Resources - Science Education and Outreach Group
Los Alamos National Laboratory
P.O. Box 1663, Mail Stop P278
Los Alamos, NM 87545
(505) 667-1919
Fax: (505) 665-4093
dbones@lanl.gov

Teacher Research Associates (TRAC) Program

The Teacher Research Associates (TRAC) Program provides outstanding middle and high school science, mathematics, and technology education teachers with professional scientific and engineering experience. This takes place through summer research at one of eight participating Department of Energy (DOE) national laboratories, facilities, and energy technology centers. The program enhances teacher leadership skills, increases teachers' awareness and understanding of current science and technology, and promotes the transfer of this knowledge to the classroom. Middle and high school teachers employed full time in public, private, or parochial schools in the United States, Puerto Rico, and U.S. Territories and Commonwealths and whose major teaching assignment is in science, mathematics, or technology education at grades 7 and higher are eligible for this program. A bachelor's degree or above is required, preferably in science or mathematics. A listing of participating DOE laboratories follows:

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Beverly K. Hartline
Associate Director
Project Management
Continuous Electron Beam
Accelerator Facility
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Mail Stop 16C
Newport News, VA 23606
Phone: (804) 249-7567
Fax: (804) 249-5065
E-mail: hartline@cebaf.gov

Kristin Ciesemier
Education Office
Fermilab
P.O. Box 500, MS 777
Batavia, IL 60510
Phone: (708) 840-3007
Fax: (708) 840-2500
E-mail: ciesmier@fnal.gov

Julene Messick
TRAC Administrator
Idaho National Engineering Lab
Lockheed Idaho Technologies
P.O. Box 1625
Idaho Falls, ID 83415-2437
Phone: (208) 526-0318
Fax: (208) 526-1880
E-mail: mej@inel.gov

Eileen Engel
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Center for Science & Engineering
Education
Lawrence Berkeley National Lab
One Cyclotron Road
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Berkeley, CA 94720
Phone: (510) 486-5719
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Terry Lashley
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Pre-College Programs
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Oak Ridge, TN 37831-6496
Phone: (423) 574-0689
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E-mail: tl7@ornl.gov

Royace Aikin
Science Education Specialist
University and Science Education
Programs
Pacific Northwest National Laboratory
P.O. Box 999, K1-22
Richland, WA 99352
Phone: (509) 375-6929
Fax: (509) 375-2576
E-mail: re_aikin@pnl.gov

Pamela Lucas
Program Administrator
Science Education Program
Princeton Plasma Physics Laboratory
P.O. Box 451
James Forrestal Campus
Princeton, NJ 08543
Phone: (609) 243-3049
Fax: (609) 243-2749
E-mail: plucas@pppl.gov

Teacher Research Internship (TRIP)

TRIP provides summer and year-long research opportunities for teachers with follow-up activities. This program includes curriculum development and classroom transfer. Nearly 50 teachers participate annually.

Eileen Vergino
Education Programs
Lawrence Livermore National Laboratory
P.O. Box 808, L-428
Livermore, CA 94550
(510) 422-3907
home page: http://ep.lnl.gov

Teaching Radiation, Energy, and Technology (TREAT)

The TREAT Workshop is a five-day course designed to provide middle and high school teachers with accurate and up-to-date information, materials, and hands-on techniques for teaching about radiation, energy, and related technology. In addition, it assists teachers in providing information and instruction to students so that they can make informed decisions regarding radiation, energy, and technology.

Jeff Holmes
Westinghouse Savannah River Company
Education Outreach Programs
227 Gateway Drive
Aiken, SC 29802
(803) 652-1818
e-mail: jeffery.holmes@srs.gov
home site: www.srs.gov

Used Energy-Related Laboratory Equipment Grants

This program assists institutions of higher education in equipping their science and engineering laboratories for energy-related research and/or instructional purposes. Used energy-related laboratory equipment is granted to nonprofit educational institutions of higher learning for use in energy-oriented research or instructional programs in the life, physical, and environmental sciences and engineering.

SueEllen Walbridge
Office of Energy Research ER-7
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
(202) 586-7231
e-mail: sueellen.wallbridge@mailgw.er.doe.gov
home page: http:\\www.fie.com (choose "used-equipment" icon)

The "Whole Frog" Project

The "Whole Frog" Project introduces modern, computer-based 3-D visualization, and demonstrates the power of whole-body, 3-D imaging of anatomy as a curriculum tool. The goal of the Whole Frog Project is to provide high school biology classes the ability to explore the anatomy of a frog by using data from high-resolution MRI imaging and from mechanical sectioning, together with 3-D surface- and volume-rendering software to visualize the anatomical structures of the intact animal.

William Johnston
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Imaging and Distributed Computer Group
Mathematical, Information, and Computational Sciences Division
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Berkley, CA 94720
(510) 486-5014
e-mail: wejohnston@lbl.gov
Home page: www_itt.lbl.gov

Small Business Innovation Research Program (SBIR)

Small Business Innovation Research Program (SBIR) seeks to increase private sector commercialization of technology developed through DOE by supporting research and development. It strives to do this in any scientific or engineering activity that: is a systemic, intensive study directed toward greater knowledge or understanding of the subject; a systemic study directed specifically toward applying new knowledge to meet a recognized need; and/or a systemic application of knowledge toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements. It awards approximately 200 grants to small businesses.

Robert Berger, SBIR Program Manager
ER-33, U.S. Department of Energy
19901 Germantown Road
Germantown, MD 20874-1290
(301) 903-5867
Home page: http:\\sbir.er.doe.gov\sbir.htm

General Services Administration

Transfer of Excess and Surplus Federal Computer Equipment

Executive order 12999, *Educational Technology: Ensuring Opportunity for All Children in the Next Century*, directs agencies–to the extent permitted by law and where appropriate–to transfer computers and related peripheral tools, determined to be excess to the needs of the agency, directly to schools and nonprofit educational organizations. The order also encourages federal employees to volunteer their time and expertise to assist teachers and to connect classrooms. The General Services Administration, which establishes policy for and provides economical and efficient management of government property and records, participates in this transfer program.

Martha Caswell
Director
Personal Property Management Policy Division
U.S. General Services Administration
7th and D Streets, SW
Washington, DC 20405
(202) 501-3828
Fax: (202) 501-6742

U.S. Department of Health and Human Services

Research Centers in Minority Institutions

Grants for Research Centers in Minority Institutions (RCMI) are for the purpose of assisting predominantly minority health professional schools and graduate institutions to strengthen their human and physical resources for biomedical and behavioral research. RCMI support assists such institutions in: faculty development, enrichment and expansion; renovation of laboratories and animal facilities; acquisition of state-of-the-art instrumentation; enhancement of research development and grants management offices;

development of computer and biostatistical resources; and development of new technologies. The program also offers assistance in conducting other institutional biomedical research-related infrastructure activities and pilot research projects.

Dr. Sidney A. McNairy, Jr.
Director, RCMI Program
National Center for Research Resources
National Institutes of Health
Public Health Service
Department of Health and Human Services
Bethesda, MD 20892
(301) 4350788
e-mail: sidneym@ep.ncrr.nih.gov

U.S. Department of Housing and Urban Development

Campus of Learners

The Campus of Learners program is designed to transform public housing projects into college-campus-style learning centers, with a special focus on technological education. In addition to on-site computer laboratories for group educational opportunities--such as job training classes--each individual unit in the "campus" should be wired for computer access so that adults and children alike can learn at their own pace. Each "campus" will rely on support from private partners such as telecommunications companies and local colleges and universities as there is no separate funding for the Campus of Learners program. However, designated public housing authorities will have an as-yet-undetermined priority for some funding from other programs.

Stella Madrid
Special Assistant to the Secretary
Office of the Secretary
U.S. Department of Housing and Urban Development
451 Seventh Street, SW. Room 10234
Washington, DC 20410
(202) 708-5029
e-mail: stella_l_madrid@hud.gov

Neighborhood Networks Initiative

This initiative is a voluntary, community-based approach to using computer technology to empower residents of HUD-assisted and insured multifamily housing. The program helps residents become more self-sufficient, employable and economically self-reliant. Some 300 multifamily projects are planning to establish computer learning centers under the Neighborhood Networks Initiative.

John Finch
U.S. Department of Housing and Urban Development
451 7th Street, SW
Room 6106
Washington, DC 20410
(202) 708-2495
Wide World Web: HTTP://WWW.HUD.GOV/NNW/NNWINDEX.HTML

Community Outreach Partnership Centers Program

The Community Outreach Partnership Centers Program is designed to foster partnerships between institutions of higher learning and neighborhoods so that the problems of urban communities can be better addressed. Using technology as a means of furthering outreach with the communities and of improving the exchange of information among grantee institutions can be included in these partnerships. Some grantees are running community computing centers, setting up community "home pages" on the World Wide Web, and facilitating computerized job training community residents. While not every grantee uses technology extensively, many use it to some degree.

John Hartung, Grants Specialist
Office of University Partnerships
451 7th Street, SW, Room 8130
Washington, DC 20410
(202) 708-3061
e-mail: jhartung@hud.gov

U.S. Department of the Interior

The Four Directions Project

This project of the Bureau of Indian Affairs provides technology to Indian Schools throughout the country. It seeks to expand student access to technology, improving communication among BIA schools, expanding learning resources, and exposing the wider community to new technologies. Software, computers, and cash to fund teacher training in eight pilot schools were provided by the Microsoft Corporation. Incorporating Native American themes into the curriculum and expanding access and use of technology by Indian students are also goals of the project.

Bill Mahoji
Four Directions Project Coordinator
Mailstop 36-12 MIB
1848 C Street, NW
Washington, DC 20036
Homepage: http://www/challenge.ukans.edu

U.S. Department of Justice

Partnerships Against Violence Network (PAVNET)

PAVNET, an initiative launched by an unprecedented coalition of federal agencies, is an automated resource designed to assist the development of comprehensive approaches to reducing violence. PAVNET's goal is to integrate information on the wide range of strategies and resources currently available and to remove the barriers that communities face in sharing information about proven and promising programs that combat violence. A central repository for information on programs, sources of funding, and technical assistance providers, PAVNET can be accessed via the Internet (**pavnet.esusda.gov**). Information is also available in the form of printed resource guides. PAVNET is a joint effort of the Departments of Agriculture, Education, Health and Human Services, Housing and Urban Development, Justice and Labor.

Juvenile Justice Clearinghouse
1600 Research Boulevard
Rockville, MD 20850
(800) 851-3420
(301) 251-5500
pavnet.esusda.gov

U.S. Department of Labor

Women's Special Employment Assistance

The Women's Special Employment Assistance program helps in the development of policies and programs affecting the employment of women, by expanding training and employment opportunities for women and promoting their entry into better paying jobs, especially in new technology and nontraditional occupations.

Ida Castro, Director
Women's Bureau
Office of the Secretary
Department of Labor
Washington, DC 20210
(202) 219-6611
icastro@dol.gov

U.S. Department of Transportation

Aviation Education

This program promotes changing public perception through education by creating a public awareness of the need to promote the development and enhancement of education in aviation. It establishes a civil aviation information distribution program within each region. It also promotes safety in the skies through aviation education and creates career awareness in aviation at the elementary and secondary levels and prepares qualified individuals to meet the future needs of aviation. This program stimulates public and private sector initiative in meeting the American and worldwide competitive challenge in science and technology, and aids educators by providing aviation information they can readily use in their normal classroom curriculum or in special classroom projects, to improve communication skills and math, science, technology and computer literacy as it relates to aviation. The project aims at helping educators identify the learning needs of our society in this rapidly changing technological era.

Phil Woodruff
Civil Aviation Information Distribution Division
Aviation Education Program, AHT-100
Federal Aviation Administration
Nassif Building, PL100
400 7th Street, SW
Washington, DC 20590
(202) 267-3788
e-mail: phil_woodruff@glenn.senate.gov

University Transportation Centers Program

The University Transportation Centers program provides grants to nonprofit institutions of higher learning for the purpose of establishing and operating university transportation centers to conduct research, education and technology transfer programs concerning regional and national transportation issues. The established university transportation centers address surface transportation problems and issues and seek solutions to both long-range and immediate transportation problems.

Pat Cass
Research and Special Programs Administration
Office of University Research and Education
Department of Transportation
400 Seventh Street, SW, Room 10309
Washington, DC 20590
(202) 418-8181

U.S. Department of Veterans Affairs

Educational Assistance Programs

The Department of Veterans Affairs administers a variety of educational assistance programs for veterans, servicepersons, eligible dependents and members of the Selected Reserve. The best known program is the Montgomery GI Bill, of which there are two distinct versions. The first is the Montgomery GI Bill-Active Duty, which provides benefits for those who have been discharged from service (veterans) and those who are still on active duty (servicepersons). The other version is the Montgomery GI Bill-Selected Reserve, which provides similar benefits to active and non-active reserve personnel. Another significant program, although much smaller in terms of overall participants, is the Dependents' Educational Assistance program. This program provides education benefits for spouses, surviving spouses and children.

Eligible individuals may pursue a wide variety of training opportunities, including undergraduate and graduate degree programs at colleges and universities. Other types of training such as cooperative training, correspondence courses, vocational-technical training and apprenticeship/on-job training are also available.

Another important benefit available to veterans pursuing training at the three-quarter or full-time rate is the work-study program. This program allows veterans to perform work for the Department of Veterans Affairs in return for an hourly wage. Payments are at the federal minimum wage or the veteran's state minimum wage, whichever is greater.

All of these programs may involve utilization, instruction, and training in education technology.

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VAONLINE Education Payment Inquiry Pilot

VAONLINE is an electronic information system. Veterans, school officials and veterans service organizations in New York State, Ohio, Pennsylvania, Oklahoma and Texas, through the use of personal computers, can enter education payment inquiries and send them directly to the Buffalo Regional Processing Office. Thirteen more states are scheduled to have access to this service in September of 1996. Access is by PC and Modem at 1-800-871-8387 or Internet at VAONLKINE.VA.GOV.

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National Aeronautics and Space Administration (NASA)

Current Classroom of the Future (COTF) Research & Development Projects

The Astronomy Village: Investigating the Universe multimedia program contains ten complete investigations in astronomy intended to complement and extend high school science curricula. Each investigation extends across four weeks of daily one-hour sessions. Working much as astronomers do in a simulated hilltop observatory environment, students using Astronomy Village are immersed in a problem-solving scenario to help them learn about the nature of scientific inquiry while studying contemporary problems in astronomy.

BioBLAST is a multimedia, high school curriculum supplement which uses NASA's Advanced Life Support System (ALSS) research as a conceptual framework for teaching key biological concepts. This project is in the first year of its two-year development and iterative testing cycle. As one of the COTF projects, BioBLAST addresses the organizational mission of developing innovative educational technology applications that support student learning through activities that reflect the practice of science.

Exploring the Environment. As part of NASA's High Performance Computing and Communications (HPCC) program, the Exploring the Environment project is developing high school environmental science and earth science modules that are accessible over the Internet. The project emphasizes on-line collaboration, NASA's remote sensing databases, and teacher training.

NASA COTF
Wheeling Jesuit University
316 Washington Avenue
Wheeling, WV 26003
(304) 243-2388
http://www.cotf.edu/

NASA Classroom of the Future

The Classroom of the Future (COTF) program at Wheeling Jesuit University serves as NASA's principal national research and development center for educational technologies as well as a key agency resource in providing technology-based tools and resources to K–12 schools. The mission of the COTF program is to help improve the quality of K–12 mathematics, science, and technology education in the United States. Working with educators and scientists from across the nation, COTF is developing the latest in multimedia curriculum tools for elementary and secondary classroom teachers. COTF contains several multimedia-capable classrooms; a video production suite featuring Ku-Band broadcast capability; high-speed, broad bandwidth connectivity to the Internet; a distance learning classroom; a regional NASA Teacher Resource Center; a Challenger Learning Center Space Flight and Mission Control simulator; and a unique cutting edge computer-video LAN over which it is possible to provide dozens of users with simultaneous access to multiple interactive multimedia resources.

NASA SPACELINK

NASA Spacelink is one of the agency's electronic resources specifically developed for use by the educational community. It is a comprehensive electronic library which contains current information related to NASA's aeronautics and space research. Teachers, faculty, and students will find that Spacelink offers not only information about NASA programs and projects, but also teacher guides, pictures, and computer software that can enhance classroom instruction. For users connecting via the World Wide Web, Spacelink also provides links to other NASA resources on the Internet.

Educators can access materials chosen specifically for their educational value and relevance including: science, mathematics, engineering, and technology education lesson plans; information on NASA educational programs and services; historical information related to NASA aeronautics and space research; current status reports on agency projects and events; news releases; and television broadcast schedules for NASA TV.

Spacelink may also be accessed by computer through direct-dial modem or the Internet. NASA Spacelink can be accessed through the following connection methods:
modem line: (205) 895-0028; terminal emulation: VT-100 required; data format: 8-N-1.

NASA Spacelink fully supports the following Internet services:
World Wide Web: http://spacelink.msfc.nasa.gov; Telnet: spacelink.msfc.nasa.gov; Gopher: spacelink.msfc.nasa.gov; Anonymous FTP: spacelink.msfc.nasa.gov; TCP/IP address: 192.149.89.61

NASA Spacelink
Education Programs Office
Mail Code CL01
NASA Marshall Space Flight Center
Huntsville, AL 35812-0001
E-mail: comments@spacelink.msfc.nasa.gov

NASA Television

Established in the early 1980s, NASA Television offers the general public a front-row seat at mission launches and activities taking place in space during a mission, as well as informational and educational programming, historical documentaries, and updates on the latest developments in aeronautics and space science.

Programming on NASA Television begins at 12:00 noon EDT, Monday through Friday, and is shown in four-hour blocks that are repeated at 4:00 p.m., 8:00 p.m. and midnight. Although all programming has historical and educational value, the 2:00 p.m., 6:00 p.m., 10:00 p.m. and 2:00 a.m. programming are designated as containing educational material suitable for classroom use.

For more information, contact:
NASA Headquarters, Code P-2
NASA TV
Washington, DC 20546
(202) 358-3572
http://www.hq.nasa.gov/office/pao/ntv.html

NEWEST (NASA Educational Workshops for Elementary School Teachers)

NEWMAST (NASA Educational Workshops for Mathematics, Science and Technology Teachers)

NASA Educational Workshops provide teachers with an opportunity to observe NASA's state-of-the-art research and development through direct interaction with NASA scientists at each of the nine NASA field centers. Translation activities have been developed and incorporated into the workshops to help teachers adapt their new content knowledge, experience, and materials into their specific educational situations. Selected participants will spend two weeks at one of NASA's nine centers. Travel expenses, housing and meals are included as part of the program.

The NEWEST and NEWMAST programs are sponsored by NASA and implemented in cooperation with International Technology Educational Association (ITEA), National Council of Teachers of Mathematics (NCTM) and the National Science Teachers Association (NSTA).

Workshop Activities
Workshop participants will visit research and applied science facilities; examine topics

relating to Mission to Planet Earth, Aeronautics, Human Exploration and Development in Space, Space Science and Space Technology; collect and review educational materials in the Teacher Resource Center; and share their teaching experiences and ideas with other participants.

For more information, contact:

National Science Teachers Association
1840 Wilson Boulevard
Arlington, VA 22201
(703) 243-7100
home page: http://www.nsta.org

or

Education Division, Code FE
NASA Headquarters
Washington, DC 20546
(202) 358-1110

Quest

Quest is the home of NASA's K–12 Internet Initiative, one of the electronic resources that the agency has developed for the educational community. The project specializes in providing programs, materials, and opportunities that allow teachers and students to use NASA resources as learning tools to explore the Internet. Through Quest teachers can access information about educational grants, interact with other schools that are already online, and explore links to other NASA educational resources.

One of Quest's most unique endeavors is the "Sharing NASA" online interactive project. Students and educators are given the opportunity to communicate with NASA scientists and researchers to experience the excitement of real science in real time. In addition to these programs, the project also houses information and materials which accompany the K–12 Internet Initiative videos. These videos promote the Internet in schools and assist educators in acquiring and integrating the Internet into the classroom. Quest can be accessed via the Internet at: http://quest.arc.nasa.gov. For information about the videotapes, send an E-mail message to: video-info@quest.arc.nasa.gov.

To stay informed about new opportunities in the Sharing NASA program, send an E-mail message to: listmanager@quest.arc.nasa.gov in the body of the message, write these words: subscribe sharing-nasa. For additional information, send an E-mail message to: info@quest.arc.nasa.gov.

Small Business Innovation Program (SBIR)

The Small Business Innovation Program (SBIR) seeks to develop innovative technologies by providing competitive research contracts to U.S.-owned small businesses to develop leading-edge technologies.

John Ippitito
SBIR Program Manager
Code XC, NASA
Washington, DC 20546-0001
(301) 309-1234
home page: www.alliedtech.com

(Note: A listing of NASA Teacher Resource Centers is located in Appendix G)

The National Endowment for the Arts

ArtsEdge: National Arts Education Information Network

The Arts Endowment wants to help those involved in arts education organize and share their knowledge with each other and with others outside the arts. The Arts Endowment, together with the U.S. Department of Education, is supporting the development of a national arts and education information network called ArtsEdge. This concept was supported by the findings of an Endowment-supported feasibility study and the recommendations of the National Arts Education Partnership Working Group (a national task force) which called for a "proactive national system for gathering and disseminating information resources." Computer-based and interactive, the network is being developed by the John F. Kennedy Center for the Performing Arts to:

- connect people to people and to information (through interactive technologies such as electronic mail, on-line forums and conferences, and access to multi-media resources);
- build a computerized database about promising arts education programs and practices; and
- join with other networks in the arts and in education.

Now in its pilot phase, the network has begun to develop a critical mass of information and users. More than 20,000 people visit its home page every week to see new content on educational reform, curricula and promising programs and practices, and new research. The content is organized by useful categories such as community connections, resources for students, and a unique Curriculum Studio for the development of new curricula in the arts. ArtsEdge is available via the World Wide Web at <http://artsedge.kennedy-center.org>.

Scott D. Stoner
ArtsEdge: National Arts and Education Information Network
The John F. Kennedy Center for the Performing Arts
Washington, DC 20566-0001
(202) 416-8871
e-mail: stoner@artsedge.kennedy-center.org

The National Endowment for the Humanities (NEH)

The National Endowment for the Humanities has a number of education-related programs. For information about the programs listed here, contact:

Division of Research and Education
National Endowment for the Humanities
1100 Pennsylvania Avenue, NW
Washington, DC 20506
(202) 606-8380
e-mail: education@neh.fed.us
research@neh.fed.us
home page: http://www.neh.fed.us

Promotion of the Humanities–Interpretive Research/Humanities, Science and Technology

The Interpretive Research program supports humanities study designed to deepen our understanding of science, medicine, and technology and its role in our culture. It encourages collaborative or coordinated multi-year projects involving the efforts of several individuals at the professional, postdoctoral, and research assistant levels, particularly those integrating the work of science and humanities scholars. U.S. citizens and residents, state and local governments, sponsored organizations, public and private nonprofit institutions/organizations, other public institutions/organizations, federally recognized Indian tribal governments, Native American organizations, and quasi-public nonprofit institutions are all eligible to apply.

Daniel Jones
Humanities, Science and Technology
National Endowment for the Humanities, Room 318
1100 Pennsylvania Avenue, NW
Washington, DC 20506
(202) 606-8210
research@neh.fed.us

Development and Demonstration

Development and Demonstration grants fund projects related to software development and field testing. Approximately $1 million in funding is made available through this program.

Challenge Grants

The challenge grant program helps academic institutions and cultural organizations to secure long-term support and improvements for their programs, activities and resources related to the humanities, including the use and applications of technology. The matching requirement challenges institutions to raise nonfederal funds to match and/or exceed the federal award. In recent years, the federal portions of the grants have ranged from $25,000 to $1 million. For more information call (202) 606-8309, or E-mail challenge@neh.fed.us

Humanities Focus Grants

These grants are awards of up to $25,000, which go to specific projects in the humanities, including the use of technology. Deadlines for application are January 15th and September 15th of each year, and require approximately 2 months to process.

National Summer Institutes and Seminars

Seminars are small groups of teachers who want to receive teacher training from a scholar in their field of interest. Institutes are groups of 25 teachers who study and work with a faculty of scholars to explore in-depth materials related to the subjects they teach. For more information call (202) 606-8463 to speak with a program officer.

Teaching with Technology

This program funds three types of projects: materials development, field testing and classroom applications, and teacher preparation for integrating technology into the classroom. The deadline for application is April 15, 1996.

National Institute for Literacy

The National Institute for Literacy is developing an Internet-based information and communications network. Its three functions are to conduct moderated discussions on literacy issues, to provide a database of existing literacy-related information in searchable form from multiple locations, and to provide a ready reference section of relevant data. The prototype is available at URL = http://novel.nifl.gov.

National Science Foundation (NSF)

Advanced Technology Education

The Advanced Technology Education (ATE) program promotes exemplary improvement in advanced technological education at the national and regional levels through support of curriculum development and program improvement at the undergraduate and secondary school levels, especially for technicians being educated for the high-performance workplace of advanced technologies. *Curriculum development* encompasses the design and implementation of new curricula, courses, laboratories, and instructional materials. *Program improvement* encompasses faculty and teacher development, student academic support, and formal cooperative arrangements among institutions and other partners. ATE projects and centers will result in major improvements in advanced technological education, serve as models for other institutions, assure that students acquire strong backgrounds in mathematics and science, and yield nationally applicable educational products. All projects and centers have a vision for technician education which is used to guide project development. The ATE program is managed jointly by the Division of Undergraduate Education and the Division of Elementary, Secondary, and Informal Education.

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Advanced Technological Education Program
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or

Gerhard Salinger
Division of Elementary,
Secondary and Informal
Education
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230
(703) 306-1620
e-mail: gsalinge@nsf.gov

Alliances for Minority Participation Program

The Alliances for Minority Participation (AMP) Program is a multidisciplinary, comprehensive undergraduate program designed to increase the quality and quantity of students receiving baccalaureate degrees in science, mathematics, engineering, and technology (SMET). It also strives to increase the number of students entering graduate schools to obtain doctoral degrees in SMET fields normally supported by the National Science Foundation. The AMP program focuses on removing barriers that prevent full student participation in the SMET work force. The program focuses on students who are underserved by the U.S. education system, including those who are economically disadvantaged, have low participation in the SMET enterprise, and are in educational settings that do not encourage full use of their academic potential to succeed in SMET fields. The program supports systemic undergraduate reform in alliances that include partners from both two- and four-year higher education institutions, businesses and industries, national research laboratories, and local, state, and federal agencies. The program supports a teacher preparation (AMP-TP) initiative. This effort is focused on attracting individuals from groups that are underrepresented in the science and mathematics teacher work force into undergraduate teacher preparation programs.

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wmchenry@nsf.gov

Applications of Advanced Technology Program

This program provides research and development grants to examine the strengths and weaknesses of new, innovative applications of advanced technologies. The program strives to lay the foundations and enrich the knowledge necessary for the use of new, revolutionary computer and telecommunications systems as well as related technologies for teaching and learning science and mathematics.

Nora H. Sabelli, Program Director
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nsabelli@nsf.gov

Collaboratives for Excellence in Teacher Preparation Program

The NSF Collaboratives for Excellence in Teacher Preparation Program supports projects aimed at major changes in approaches to the undergraduate preparation of future teachers of elementary and secondary science and mathematics. This includes development of new institutional structures, the production of creative materials, courses and curricula for teacher education, and research on factors affecting the recruitment and preparation of teachers. Projects demonstrate leadership by the scientific discipline departments, emphasize a solid foundation in science or mathematics, and focus rigorous attention on effective teacher practices, including the use of advanced instructional technologies. Special interests include multidisciplinary projects and initiatives for recruiting members of underrepresented groups into the teaching profession. Scientists, science educators, teachers, and other educational leaders collaborate in the planning and implementation of projects. Colleges and universities or their consortia that have the capacity to prepare significant numbers of highly qualified teachers are eligible to submit proposals.

Collaboratives for Excellence in Teacher Preparation
Division of Undergraduate Education
National Science Foundation
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Arlington, VA 22230
(703) 306-1668
e-mail: eteles@nsf.gov

Comprehensive Partnerships for Mathematics and Science Achievement Program

The Comprehensive Partnerships for Mathematics and Science Achievement Program supports comprehensive precollege education reform programs targeted at city school systems that (a) are not eligible for the Urban Systemic Initiative program; and (b) do not have Local Systemic Change projects. City school systems, which are the units of change, are expected to link with institutions of higher education, businesses, professional organizations, as well as community-based and other education organizations in the design and implementation of in-school student and teacher enhancement activities and informal education efforts. The program's goals are to improve student achievement in mathematics and science courses, to enhance teacher knowledge and skills, and to expand student interest in science, mathematics, and technology careers. Academic institutions and nonprofit organizations are not eligible to apply for funding.

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Comprehensive Partnerships for Mathematics and Science Achievement Program
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bjones@nsf.gov

Informal Science Education Program (ISE)

ISE projects take place in diverse environments such as museums (of all types) and community centers, and involve the use of various media (e.g. broadcast, film, interactive technology, and print). ISE supports projects that provide rich and stimulating opportunities outside formal classroom settings where individuals of all ages, interests, and backgrounds can increase their appreciation and understanding of science, mathematics, and technology, including better understanding of concepts, topics, processes, and thinking in scientific and technical disciplines, as well as increased knowledge about career opportunities in these fields.

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Informal Science Education Program
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4201 Wilson Boulevard
Arlington, VA 22230
(703) 306-1616
e-mail: hfield@nsf.gov

Instructional Materials Development (IMD)

IMD supports the development of materials and strategies that promote the improvement of science, mathematics, and technology instruction at all levels (pre-kindergarten–12th grade), as well as improved interfaces between secondary school and college. Of particular interest are projects that include the use of technology to help students understand and apply key disciplinary concepts, as well as those that enable students to learn in ways that cannot be achieved by other means. Projects are expected to be national in scope and significance so that upon completion, materials will be ready for utilization by teachers and students across the nation.

Jim Ellis, Program Director
Instructional Materials Development Program
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(703) 306-1614
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The Networking Infrastructure for Education Program (NIEP)

NIEP provides grants to alliances of academic institutions, school districts, professional societies, state agencies, and others concerned with education reform to complete policy studies and research, development and demonstration projects related to the role of electronic networks in support of education reform. The focus in fiscal year 1996 was on evaluating the impact of technology, disseminating outcomes, and developing electronic library prototypes.

National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230
(703) 306-1651
e-mail: nie@nsf.gov.

Presidential Awards for Excellence in Science and Mathematics Teaching

These awards are designed to emphasize the importance of good teaching by recognizing and rewarding exemplary K–12 mathematics and science teachers. Four teachers per year are selected from each state as presidential awardees in elementary mathematics, elementary science, secondary mathematics, and secondary science. These teachers constitute a national network of outstanding leaders in science and mathematics education. Teachers can be nominated by colleagues, administrators, students, or parents of students. Eligible teachers include those whose primary responsibility is classroom teaching of science or mathematics in a public or private, elementary, middle/junior, or senior high school in any of the fifty states, the District of Columbia, Puerto Rico, the Department of Defense Dependant Schools, or the U.S Territories (Guam, American Samoa, the Commonwealth of Northern Marianas, and the Virgin Islands). A minimum of five years of teaching experience is required.

Emma Walton
National Science Foundation
Presidential Awards for Excellence in Science and Mathematics Teaching
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Program for Persons with Disabilities

The NSF Program for Persons with Disabilities has recently been expanded and is committed to bringing about change in academic and professional climates, developing new methods of teaching science and mathematics, increasing the awareness and recognition of the needs and capabilities of students with disabilities, promoting the accessibility and appropriateness of instructional materials and education technologies, and increasing the availability of mentoring resources. Though the foundation encourages persons with disabilities to participate fully in all NSF-supported programs, its human resource division has initiated efforts focused on (1) eliminating barriers to the participation of students with disabilities in science, engineering, and mathematics studies; (2) changing the attitudes of the education community and the public in general about the potential of persons with disabilities; and (3) offering aid for adaptive technologies and assistance to allow students, scientists, engineers, and mathematicians to participate in NSF-supported research.

Mary Kohlerman, Program Director
Program for Persons With Disabilities
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Arlington, VA 22230
(703) 306-1637
e-mail: mkohlerm@nsf.gov

Program for Women and Girls

The Program for Women and Girls supports projects that have high potential for effecting both short- and long-term changes in the representation of women in science, engineering, and mathematics careers, and in the overall science, engineering, and mathematics education of women and girls. Efforts involved in the initiative address educational issues from preschool through the graduate level, as well as professional issues. Three program activities accomplish this goal: Academic Achievement in Research and Education, Implementation and Development Projects for Women and Girls.

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lrogers@nsf.gov

Rural Systemic Initiatives Program

The Rural Systemic Initiatives Program (RSI) addresses barriers to systemic and sustainable improvements in science, mathematics, and technology education in rural, economically disadvantaged regions of the nation. The RSI is designed to fund projects from coalitions in regions defined by similarities in social, cultural, and economic circumstances, rather than by governmental boundaries. The program supports activities that lead to the formation of partnerships and coalitions; determination of present needs and resources and of future educational goals; implementation of strategies directed toward systemic educational reform, (such as: professional development for teachers and administrators that is aligned with national science and mathematics standards); adaptation of high quality, challenging curricula to address cultural diversity; and formulation of appropriate assessment strategies that measure achievement for all students regardless of socioeconomic status.

Judy Chase or Gerald Gipp
Rural Systemic Initiatives
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Arlington, VA 22230
(703) 306-1684
e-mail: lchase@nsf.gov or ggipp@nsf.gov

Statewide Systemic Initiatives Program

The Statewide Systemic Initiatives Program (SSI) encourages improvements in science, mathematics, and engineering education through comprehensive systemic changes in the education systems of the states. SSI represents a strategy to strengthen the infrastructure for science and mathematics education through coordination of state policies and resources. This requires the collaboration of educators at all levels, as well as representatives of business and industry, parents, and the community-at-large. States were selected for funding through a rigorous merit review process that included preliminary proposals, panel reviews of full proposals and site visits. Selection was based on: (1) state commitment to fundamental reform of mathematics and science education; (2) new directions in state vision for mathematics and science education that include curriculum goals, assessment, teacher development, equity, governance and improved outcomes; (3) consensus on the current status of science and mathematics education and on the identification of the most serious problems that need to be addressed; (4) partnerships that enable the effort to succeed; (5) a plan for effective management and oversight; and (6) an evaluation plan that encourages mid-course corrections. Twenty-five states and Puerto

Rico have received five-year awards.

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Teacher Enhancement (TE)

TE supports professional development projects that lead to new levels of teacher competence and a supportive school culture that empowers teachers to engage all students in rich and challenging programs in science, mathematics and technology (SMT) education. Projects improve, broaden, and deepen the disciplinary and pedagogical knowledge of teachers and involve administrators and others who play significant roles in providing quality SMT education for students in grades pre-K–12. Special emphasis is given to projects that implement systemic change, develop a leadership infrastructure, and provide research experiences for teachers and students. Of particular interest are projects that use technology to reach geographically and professionally isolated teachers and that make more curriculum and support materials available to them for their teaching. Projects that enable teachers to use curriculum materials that incorporate technology and those that empower teachers to reflect on, analyze, and improve instructional skills are encouraged. The TE program also considers projects that use technology to disseminate quality science, mathematics, and technology education materials, train teachers to use those materials effectively, and support them in making the transition.

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Teacher Preparation in Undergraduate Programs

In addition to the NSF Collaboratives for Excellence in Teacher Preparation, other programs in the Division of Undergraduate Education support teacher preparation. In particular, the Course and Curriculum, Instrumentation and Laboratory Improvement, and Undergraduate Faculty Enhancement Programs support projects which improve the undergraduate preparation of future K–12 teachers. The Advanced Technology Education program targets technicians being educated for the high-performance work place of advanced technologies. The program supports technical experiences for students and faculty, K–12 teacher development, instructional materials development, and instrumentation and laboratory improvement, as well as national/regional centers.

Robert Watson
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National Science Foundation
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(703) 306-1666
rwatson@nsf.gov

Urban Systemic Initiatives Program

The Urban Systemic Initiatives (USI) Program in science, mathematics, and technology education is a comprehensive and systemic effort designed to enable fundamental reform of K–12 science and mathematics education in large urban school systems. Eligibility for the program is limited to school systems in cities having the largest numbers of school-aged children (ages 5–17) living in poverty as determined by the 1990 Census. Built upon experience gained from the Statewide Systemic Initiatives (SSI) program and the former Comprehensive Regional Centers for Minorities, the program provides significant support for 5 years to cities that have completed comprehensive planning and demonstrate readiness to make systemic and sustainable changes in the policies, practices, and procedures of urban school systems.

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Smithsonian Institution

Harvard-Smithsonian Case Studies in Science Education

The project will create a series of 25 half-hour video case studies accompanied by written guide materials, for use in K–8 preservice and in-service teacher education programs. The project's primary goal is to create visual models of science education reform, and to provoke discussion and critical analysis by the audience of the issues surrounding their application in real-life classrooms.

Nancy Finkelstein
60 Garden Street, Mail Stop 71
Cambridge, MA 02138
(617) 496-7687
Fax: (617) 496-7670
e-mail: nfinkelstein@cfa.harvard.edu

InSIGHT: Investigative Stimuli for Intuitive Growth Using High Technology

InSIGHT focuses on advanced high school and introductory college physics courses. The project seeks to identify aspects critical to the design of computer simulations for teaching sophisticated physical concepts to students in introductory physics classes.

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(617) 495-9798
Fax: (617) 495-5405
e-mail: psadler@cfa.harvard.edu

MicroObservatory

The MicroObservatory project focuses on grades 9–12, and will develop a network of portable, automated, CCD-based (charge-coupled device) reflecting telescopes, accessible to students at their schools and over the Internet. A prototype instrument has been built, and five have been assembled to form a nationwide pilot network.

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National Science Resources Center's Resource Collection

The National Science Resources Center maintains a comprehensive and growing collection of effective science teaching resource materials. Housed at the Arts and Industries Building of the Smithsonian Institution, the collection holds more than 5,000 volumes. The resource collection is cataloged and accessible through computerized information data bases that include annotations as well as bibliographic data. The Resource Center has also produced an annotated guide to elementary science resources, entitled *Resources for Teaching Elementary School Science*. A companion for middle schools is also being developed.

Douglas Lapp, Executive Director
National Science Resources Center, MRC 403
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e-mail: dlapp@nss.edu

NSRC Elementary Science Leadership Institutes

Each summer the National Science Resources Center conducts two Elementary Science Leadership Institutes at the Smithsonian Institution. These institutes provide teams of administrators, curriculum specialists, teachers, and scientists from school districts across the country with the information and skills they need to develop and maintain effective hands-on elementary science programs. The institutes are staffed by science educators and scientists who have implemented exemplary elementary science programs in their districts. This initiative includes technical assistance to school districts across the country that are working to reform their elementary science programs.

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e-mail: dlapp@nss.edu

The Private Universe Project

The Private Universe Project is developing a six-part nationally broadcast television series to help science teachers address student preconceptions in science. The 3-year project, funded in 1992, focuses on grades K–12. The series is derived from work pioneered in Project STAR: Science Teaching through its Astronomical Roots, and is an extension of that project's award-winning video, *A Private Universe*. The goal is to alert science teachers to problems arising from their students' preconceived ideas and will encourage them to devise solutions tailored to students' specific needs.

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60 Garden Street, Mail Stop 71
Cambridge, MA 02138
(617) 496-7687
Fax: (617) 496-7670
e-mail: nfinkelstein@cfa.harvard.edu

Professional Development Opportunities for Teachers

Regional workshops and summer institutes conducted in collaboration with local institutions are designed to strengthen ties between museums and schools nationwide and to contribute to the improvement of teaching methods and materials. Summary courses for metropolitan District of Columbia-area teachers were taught by educators from throughout the Smithsonian on a variety of subjects.

Ann Bay
Office of Elementary and Secondary Education
Smithsonian Institution
Arts and Industry Building, Room 1163
Washington, DC 20560
(202) 357-2425 or (202) 357-2111
Fax: (202) 357-2116
e-mail: eseem013@fivm.si.edu

Project ARIES: Astronomy Resources for Intercurricular Elementary Science

ARIES was funded in 1992 for three years and its initial focus is on grades 3–4. The project will develop a modular, hands-on, discovery-based, intercurricular, multicultural physical science program using astronomy as the central focus. Teacher enhancement videos will also be developed to parallel the curriculum.

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e-mail: bward@cfa.harvard.edu

Project DESIGNS (Doable Engineering Science Investigations Geared for Non-science Students)

This program, funded by National Science Foundation, develops modules of design-based activities using design- to-constraints and testing against nature. It is targeted for inclusion in grades 6–9. The program consists of technology education and physical science courses.

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Cambridge, MA 02138
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Fax: (617) 496-5404
e-mail: hcoyle@cfa.harvard.edu

Project IMAGE: Investigative Materials About Global Environments

IMAGE focuses on grades 7–12, with an emphasis on grades 7–9. The project developed and field-tested 17 hands-on, investigative activities using satellite and high altitude imagery to confront students with the problems and challenges of our global environment.

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Project SPICA: Support Program for Instructional Competency in Astronomy

Project SPICA provides astronomy education support to precollege teachers, particularly in grades K–9. The project has prepared some 180 expert teachers in 41 states to provide workshops to other teachers who want to enhance their use of astronomy in their classrooms. The SPICA agents may be contacted through the project office.

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Harvard-Smithsonian Center for Astrophysics
60 Garden Street, MS71
Cambridge, MA 02138
(617) 496-4785
Fax: (617) 496-5405
home page: http://cfa-www.harvard.edu/cfa/sed

Science and Technology for Children

This project produces a complete program of science instruction for children in grades 1–6. The project is composed of 24 units that involve children in hands-on investigations of scientific phenomena and enables them to learn by doing. This is a curriculum project of the National Science Resources Center.

Douglas Lapp
Executive Director
National Science Resources Center
MRC 403
Smithsonian Institution
Washington, DC 20560
(202) 357-2555
Fax: (202) 786-2028
e-mail: dlapp@nss.edu

A Guide to Federal Technology Resources on the Internet

At a Glance

The following is a list of internet addresses that are applicable to education technology. All the addresses are valid as of summer 1996. The U.S. Department of Education would like to acknowledge that these homesites and their addresses were originally compiled by *The National Journal* in its *Federal Internet Source*.

Executive Office of the President

Office of Science and Technology Policy	World Wide Web: www.whitehouse.gov /WH/EOP/OSTP/html/OSTP_Home.html

U.S. Department of Agriculture

Agricultural Research Service	World Wide Web: www.ars.grin.gov:80/ARS/ars.html
Biotechnology, Biologics and Environmental Protection	World Wide Web: www.aphis.usda.gov/BBEP
USDA Graduate School	World Wide Web: grad.usda.gov
National Agricultural Library	World Wide Web: www.nalusda.gov
National Genetic Resources Program	World Wide Web: www.ars-grin.giv Gopher: gopher.ars-grin.gov
Natural Resources Conservation Service	World Wide Web: www.ncg.nrcs.usda.gov

U.S. Department of Commerce

Air and Space Commercialization Service	World Wide Web: www.doc.gov/oasc.html
National Institute of Standards and Technology	World Wide Web: www.nist.gov Gopher: gopher.server.nist.gov
NIST Computer Security Resource Clearinghouse	Gopher: csrc.ncsl.nist.gov:871/1
National Oceanic and Atmospheric Administration	World Wide Web: www.noaa.gov
NOAA Environmental Information Services	World Wide Web: www.esdim.noaa.gov
NOAA Environmental Satellite, Data and Information Service	World Wide Web: ns.noaa.gov/NESDIS_Home.html

NOAA National Climatic Data Center	World Wide Web: www.ncdc.noaa.gov
National Technical Information Service	World Wide Web: www.fedworld.gov/ntis/ntishome.html
National Telecommunications and Information Administration	World Wide Web: www.ntia.doc.gov Gopher: gopher.ntia.doc.gov

Department of Defense

Acquisition and Technology	World Wide Web: www.acq.osd.mil
Advanced Research Projects Agency	World Wide Web: www.arpa.mil
Ballistic Missile Defense Organization	World Wide Web: www.acq.osd.mil/bmdo/bmdolink/html
Defense Information Systems Agency	World Wide Web: www.disa.mil
Defense Research and Engineering Network	World Wide Web: info.arl.army.mil/ACIS/ACD/DREN/
Defense Software Repository System	World Wide Web: ssed1.ims.disa.mil/srp/dsrspage.html
Defense Technical Information Center	World Wide Web: asc.dtic.dla.mil Gopher: asc.dtic.dla.mil
Defense Technical Information Web	World Wide Web: www.dtic.dla.mil:80/dtiw
National Defense University	World Wide Web: www.ndu.edu
Technology Transition Office	World Wide Web: www.dtic.dla.mil/techtransit
Army Battle Labs	World Wide Web: www.tradoc.army.mil/battle.labs/index.htm
Army Corps of Engineers Construction Engineering Research Laboratories	World Wide Web: www.cecer.army.mil
Army High Performance Computing Research Center	World Wide Web: www.arc.umn.edu/html/ahpcrc.html
Army Research Laboratory	World Wide Web: info.arl.mil
Naval Observatory	World Wide Web: www.usno.navy.mil
Naval Research Laboratory	World Wide Web: www.nrl.navy.mil

Department of Education

	World Wide Web: www.ed.gov Gopher: gopher.ed.gov
National Network of Regional Educational Laboratories	Gopher: gopher.nwrel.org

Department of Energy

Advanced Computing Laboratory	World Wide Web: www.acl.lanl.gov
Argonne National Laboratory	World Wide Web: www.anl.gov
Brookhaven National Laboratory	World Wide Web: suntid.bnl.gov/bnl.html
Center for Computational Sciences	World Wide Web: www.ccs.ornl.gov Gopher: gopher.ccs.ornl.gov
Continuous Electron Beam Accelerator Facility	World Wide Web: www.cebaf.gov
Energy Efficiency and Renewable Energy Network	World Wide Web: www.eren.doe.gov
Energy Research Office	World Wide Web: www.er.doe.gov
Fermi National Accelerator Laboratory	World Wide Web: fnnews.fnal.gov
Fossil Energy Office	World Wide Web: www.fe.doe.gov
Fusion Energy Sciences Program	World Wide Web: wwwof.er.doe.gov
Fusion Research Center	World Wide Web: w3fusion.ph.utexas.edu/fre/
Lawrence Berkley Laboratory	World Wide Web: www.lbl.gov/LBL.html
Lawrence Livermore National Laboratory	World Wide Web: www.llnl.gov
LLNL National Energy Research Supercomputer Center	World Wide Web: www.nersc.gov
Los Alamos National Laboratory	World Wide Web: www.lanl.gov
LANL Advanced Computing Laboratory	World Wide Web: www.acl.lanl.gov/UserInfo/index.html
LANL Physics Information Service	World Wide Web: mentor.lanl.gov Gopher: mentor.lanl.gov
LANL T-2 Nuclear Information Service	World Wide Web: t2.lanl.gov Gopher: t2.lanl.gov
Mathematical, Information and Computational Sciences	World Wide Web: www.er.doe.gov/production/octr/mics/index.html
National Renewable Energy Lab	World Wide Web: info.nrel.gov
Oak Ridge National Laboratory	World Wide Web: www.ornl.gov Gopher: gopher.ornl.gov
Opennet	World Wide Web: apollo.osti.gov/html/osti/opennet/opennet.html
ORNL Environmental Sciences Division	World Wide Web: gopher.esd.ornl.gov Gopher: gopher.esd.ornl.gov
Pacific Northwest Laboratory	World Wide Web: www.pnl.gov:2080

Princeton Plasma Physics Laboratory	World Wide Web: www.pppl.gov
Sandia National Laboratory	World Wide Web: www.sandia.gov
Scientific and Technical Information Office	World Wide Web: apollo.osti.gov/html/osti

Department of Health and Human Services

National Cancer Institute (NCI)	World Wide Web: wwwicic. nci.nih.gov/clinpdq/canet.htm
Cancernet Information	Gopher: gopher.nih.gov path: Health and Clinical
NCI International Cancer Information Center	World Wide Web: wwwicic. nci.nih.gov/clinpdq/canet.htm
NCI Laboratory of Mathematical Biology	World Wide Web: www.lmmb.ncifcrf.gov
National Center for Biotechnology Information	World Wide Web: www.ncbi.nlm.nih.gov
National Center for Food Safety and Applied Nutrition	World Wide Web: vm.cfsan.fda.gov/list.html
National Center for Toxicological Research	Gopher: goper.nctr.fda.gov
National Health Information Center	World Wide Web: nhic-nt.health.org
National Institutes of Health	World Wide Web: www.nih.gov Gopher: gopher.nih.gov
National Heart, Lung and Blood Institute	Gopher: gopher.nhlbi.nih.gov
National Institute of Allergy and Infectious Diseases	World Wide Web: www.niaid.nih.gov Gopher: gopher.niaid.nih.gov
National Institute of Diabetes and Digestive and Kidney Disease	World Wide Web: www.niddk.nih.gov
National Institute of Environmental Health Sciences	World Wide Web: www.niehs.nih.gov Gopher: gopher.niehs.nih.gov
National Institute of Mental Health	World Wide Web: www.nimh.nih.gov/home.htm Gopher: gopher.nimh.nih.gov
National Library of Medicine	World Wide Web: www.nlm.nih.gov Gopher: gopher.nlm.nih.gov
National Toxicology Program	World Wide Web: ntp-server.niehs.nih.gov Gopher: ntp-ftp-server.niehs.nih.gov:70/1

Substance Abuse and Mental Health Services Administration	World Wide Web: www.samsha.gov
Department of the Interior	
National Biological Service	World Wide Web: www.nbs.gov
National Park Service	World Wide Web: www.nps.gov
National Wildlife Refuge Service	World Wide Web: bluegoose.arw.r9.fws.gov
U.S. Geological Survey	World Wide Web: www.usgs.gov
USGS Atlantic Marine Geology	World Wide Web: marine.usgs.gov
Department of Transportation	
Bureau of Transportation Statistics	World Wide Web: www.bts.gov Gopher: gopher.bts.gov
Federal Aviation Administration	World Wide Web: www.faa.gov
Environmental Protection Agency	World Wide Web: www.epa.gov Gopher: gopher.epa.gov
EPA Information Locator	World Wide Web: earth1.epa.gov/Contacts
National Aeronautics and Space Administration (NASA)	World Wide Web: www.nasa.gov
NASA Ames Research Center	World Wide Web: www.arc.nasa.gov
NASA Center for Aerospace Information	Gopher: gopher.sti.nasa.gov
NASA Center for Computational Sciences	World Wide Web: nccinfo.gsfc.nasa.gov/NCCS
NASA Dryden Flight Research Center	World Wide Web: www.dfrf.nasa.gov/dryden.html
NASA Earth Observing System	World Wide Web: eos.nasa.gov
NASA Goddard Space Flight Center	World Wide Web: hypatia.gsfc.nasa.gov/
NASA Headquarters	World Wide Web: www.hq.nasa.gov
NASA High Energy Astrophysics Science Archive Research Center	World Wide Web: legacy,gsfc.nasa.gov Gopher: Legacy.gsfc.nasa.gov

NASA Jet Propulsion Laboratory	World Wide Web: www.ppl.nasa.gov
NASA Johnson Space Center	World Wide Web: www.jsc.nasa.gov
NASA K–12 National Research and Education Network	World Wide Web: quest.arc.nana.gov Gopher: quest.arc.nasa.gov
NASA Kennedy Space Center	World Wide Web: www.ksc.nasa.gov/ksc.html Gopher: www.ksc.nasa.gov
NASA Laboratory for Terrestial Physics	World Wide Web: Itpsun.gsfc.nasa.gov Gopher: Itpsun.gsfc.nasa.gov
NASA Langley Research Center	World Wide Web: mosiac.larc.nasa.gov/larc.html
NASA Liftoff to Space Exploration	World Wide Web: liftoff.msfc.nasa.gov
NASA Marshall Space Flight Center	World Wide Web: www.msfc.nasa.gov
NASA Network Information Center	World Wide Web: nic.nasa.gov Gopher: nic.nasa.gov
NASA Shuttle Mission	World Wide Web: shuttle.nasa.gov
NASA Space Calendar	World Wide Web: newproducts.jpl.nasa.gov/calendar
NASA John C. Stennis Space Center	World Wide Web: www.ssc.nasa.gov
NASA Telnet Services	World Wide Web: www.sti.nasa.gov/telnet.html/
NASA Welcome to Planets	World Wide Web: stardust.jpl.nasa.gov/planets
NASA World Wide Web Servers	World Wide Web: www.sti. nasa.gov/www.html
National Center for Atmospheric Research	World Wide Web: www.ucar.edu Gopher: gopher.ucar.edu
National Center for Supercomputing Applications	World Wide Web: www.ncsa.uisa.uiuc.edu Gopher: gopher.ncsa.uiuc.edu/

National Science Foundation	World Wide Web: www.nsf.gov Gopher: gopher.nsf.gov
NSF Center for Biological Timing	Gopher: minerva.acc.Virginia.edu
NSF Long-Term Ecological Research Network	Gopher: Internet.washington.edu

NSF Metacenter for Computational Science and Engineering	World Wide Web: pscinfo.psc.edu/MetaCenter/MetaCenterHome.html
NSF Science and Technology Information System	Gopher: stis.nsf.gov

Smithsonian Institution

	World Wide Web: www.si.edu
Smithsonian Center for Earth and Planetary Studies and National Air and Space Museum	World Wide Web: ceps.nasm.edu:2020/homepage.html
Smithsonian Institution Research Information System	Gopher: siris.si.edu
Smithsonian Natural History Museum	World Wide Web: www.nmnh.si.edu Gopher: nmnhgoph.si.edu/11

A Guide to Federal Technology Resources on the Internet

The following is a list of internet addresses that are applicable to education technology. All the addresses are valid as of summer 1996. This information was provided, with permission, by the *National Journal*, which publishes *The Federal Internet Source.*

EXECUTIVE OFFICE OF THE PRESIDENT

Office of Science and Technology Policy

World Wide Web
www.whitehouse.gov/WH/EOP/OSTP/html/OSTP_Home.html

This site offers links to the four divisions of the OSTP: Environment; National Security and International Affairs; Science; and Technology. Also, links to a calendar of events, the administration's research and development budget, the National Science and Technology Council and the president's committee of advisers on science and technology.

U.S. DEPARTMENT OF AGRICULTURE

Agricultural Research Service

World Wide Web
www.ars.grin.gov:80/ARS/ars.html

USDA provides information on its in-house research arm. Includes research locations, programs and employment opportunities.

Biotechnology, Biologics and Environmental Protection

World Wide Web
www.aphis.usda.gov/BBEP

Site is divided into three sections: Environmental Analysis and Documentation; Technological and Scientific Services; and Biotechnology Permits. Includes information on securing permits for genetically engineered organisms, veterinary biologies, compliance with state and federal environmental laws, and pesticide use. Also, a list of viruses by state.

USDA Graduate School

World Wide Web
grad.usda.gov

USDA graduate school provides details on class schedules and events in the D.C. area and elsewhere. Includes online registration.

National Agricultural Library

World Wide Web
www.nalusda.gov

The National Agricultural Library lists events and resources, including links to publications, and information on the new Farm Bill. Includes a staff telephone list. Also, links to the NAL's 10 information centers: Agricultural Trade and Marketing; Alternative Farming Systems; Animal Welfare; Aquaculture; Biotechnology; Food and Nutrition; Plant Genome Data; Rural Information and Rural Health Service; Technology Transfer; and Water Quality.

National Genetic Resources Program

World Wide Web:
www.ars-grin.giv

Gopher:
Gopher.ars-grin.gov

This site offers files on the National Plant Germplasm System, National Animal Germplasm (including aquatics), National Microbial Germplasm, National Insect Genetic Resources, Plant Genome database Gophers and global biological information servers.

Natural Resources Conservation Service

World Wide Web
www.ncg.nrcs.usda.gov

This site provides links to databases on natural resource assets, such as soil, water, air, plants and animals, including humans. Also links to the National Cartography and Geographic Information System Center, National Plant Data Collection Center, National Resources Inventory, National Soil Survey Center and the Plants Information Share Fast Track, and information on NRCS programs, including conservation partnership and volunteer programs. Also includes technical references, news releases and organizational information.

U.S. DEPARTMENT OF COMMERCE

Air and Space Commercialization Service

World Wide Web
www.doc.gov/oasc.html

This site is divided into four sections: Commercial Remote Sensing; Space Transportation Policy; Launch Trade Agreements; and Emerging Markets. Office mission is to foster growth in the U.S. commercial space industry.

National Institute of Standards and Technology

World Wide Web
www.nist.gov

Gopher
gopher.server.nist.gov

The NIST site provides general information; programs and conferences; news releases, newletters and journals; and activities. The Advanced Technology Program link has information on the program, which provides cost-shared grants to industry for developing high-risk technologies with commercial potential. The Manufacturing Extension Partnership section has information on a program to help small and medium-sized companies adopt new technologies. NIST Laboratory Programs describe laboratory services. Information on standards is included under the Measurement Services for Standard Reference Data section.

NIST Computer Security Resource Clearinghouse

Gopher
csrc.ncsl.nist.gov:871/1

This site provides information on computer security, including news releases, virus information and forums on privacy risk.

National Oceanic and Atmospheric Administration

World Wide Web
www.noaa.gov

NOAA offers press releases, and links to the National Environmental Satellite, Data and Information Service; the National Weather Service; Coastal Ocean Program Office of Global Programs and HPCC; and the Office of Oceanic and Atmospheric Research. Also, satellite images of hurricanes and other items.

NOAA Environmental Information Services

World Wide Web
www.esdim.noaa.gov

Information on NOAA data availability and links to NOAA data centers; climatic, oceanographic and geophysical resources are available here.

NOAA Environmental Satellite, Data and Information Service

World Wide Web
ns.noaa.gov/NESDIS_Home.html

Environmental satellite images and information, and links to other relevant sites can be found here.

NOAA National Climatic Data Center

World Wide Web
www.ncdc.noaa.gov

Access to climatic and weather data publications and NCDC products is available at this site.

National Technical Information Service

World Wide Web
www.fedworld.gov/ntis/ntishome.html

This site provides to FedWorld, the NTIS Bibliographic database, NTIS Alerts, the Federal Research in Progress data base, the Foreign Broadcast Information Service Daily Report, the NTIS FAX Direct, NTIS-published searches, an overview of the American Technology Preeminence Act, and information on Japan.

National Telecommunications and Information Administration

World Wide Web
www.ntia.doc.gov

Gopher
gopher.ntia.doc.gov

NTIA provides general information, press releases and legislative information, grant programs, White House documents, and information joining virtual conferences on topics of interest and ordering NTIA documents. Also, information on foreign and domestic telecommunications policy, including the 1996 telecommunications reform legislation.

DEPARTMENT OF DEFENSE

Acquisition and Technology

World Wide Web
www.acq.osd.mil

Information on acquisition and acquisition reform can be found here, as well as training, the Defense Science Board, the Defense Technical Information Center, economic security, electronic commerce, advanced technology, special programs, the Defense Logistics Agency, procurement and strategic and tactical systems.

Advanced Research Projects Agency

World Wide Web
www.arpa.mil

.A description of the ARPA's technical office structure is offered here, including scalable computing and software, microsystems and national-scale information enterprise. Also available are Technology Integration Infrastructure online versions of presentations and related information for the High-Performance Computing and Communications Symposium; solicitations of ARPA offices; and microsystems semi-annual reports.

Ballistic Missile Defense Organization

World Wide Web
www.acq.osd.mil/bmdo/bmdolink/html

Information on BMDO programs; theater missile defense; national missile defense; and advanced technology development are available here.

Defense Information Systems Agency

World Wide Web
www.disa.mil

DISA offers information on: the Joint Inter-operability and Engineering Organization Center for Engineering Activities; ATDNet information; technology insertion process; asynchronous Transfer Mode technology initiatives and forum; Modular Information Infrastructure Design and Analysis System; wireless demonstrations; the Advanced Telecommunications Program; Lawrence Livermore Laboratory; BBN Systems and Technologies DIS Department; Defense Research and Engineering Network; and the Bay Area Gigabit Network. Searchable by subject.

Defense Research and Engineering Network

World Wide Web
info.arl.army.mil/ACIS/ACD/DREN/

Information on DREN program management, network management and maps are availablehere.

Defense Software Repository System

World Wide Web
ssed1.ims.disa.mil/srp/dsrspage.html

An automated system for storing and retrieving reusable software components is contained at this site. Users describe requirements through a series of menu driven screens. Also makes available information on training sessions. This information is free, but requires an account.

Defense Technical Information Center

World Wide Web
asc.dtic.dla.mil

Gopher
asc.dtic.dla.mil

This site describes government programs for assistance in defense conversion or reinvestment. Links to formal DTIC organizations chartered by the DOD for scientific and technical information exchange. Information is also available on conferences, products and services, DIGEST, the DTIC newsletter, DOD personnel and contractors, and contact information for the new DTIC location.

Defense Technical Information Web

World Wide Web
www.dtic.dla.mil:80/dtiw

This site offers links to the Scientific and Technical Information Network; department administrative information, including policy and budget documents; newsfeeds; research projects; library automation; and the Information Analysis Centers, formal organizations chartered by the DOD to facilitate use of scientific and technical information. Also links to other DOD agencies.

National Defense University

World Wide Web
www.ndu.edu

Information on NDU departments, including the National War College, location, mission and research are provided here.

Technology Transition Office

World Wide Web
www.dtic.dla.mil/techtransit

This site is the entry point for all information on technology transfer activities of the DOD and state and international organizations.

Army Battle Labs

World Wide Web
www.tradoc.army.mil/battle.labs/index.htm

Information on experimental methods of warfare and technology; Battle Lab locations; and conference and event information is provided here.

Army Corps of Engineers Construction Engineering Research Laboratories

World Wide Web
www.cecer.army.mil

This site contains information on contracting; job opportunities; acoustics; concurrent engineering; dynamic, spatial and ecological modeling teams; and USACERL regulatory software. Publications and fact sheets are also available.

Army High Performance Computing Research Center

World Wide Web
www.arc.umn.edu/html/ahpcrc.html

Links to International Connection Machine Users Group, training and summer courses, technology transfer information, software and AHPCRC research are provided here.

Army Research Laboratory

World Wide Web
info.arl.mil

This site provides links to information on advanced computing and information systems; battlefield environment; electronics and power sources; human research and engineering; materials; vehicle structures; sensors, signatures and signal and information processing; survivability/lethality analysis; and weapons technology.

Naval Observatory

World Wide Web
www.usno.navy.mil

Information on tours of the observatory; Sky Facts, a brief summary of astronomical events for the month; and lists of observatory products and order forms can be found here. Astrometry section contains data sets on stars and stellar positions and information on the Navy prototype optical interferometer.

Naval Research Laboratory

World Wide Web
www.nrl.navy.mil

The NRL provides links to the NRL commanding officer and technical director, the Deep Space Program Science Experiment (Clementine) and other NRL personnel information. Information on business operations; general science and technology; warfare systems and sensors research; materials science and component technology; ocean and atmospheric science technology; and the Naval Center for Space Technology.

DEPARTMENT OF EDUCATION

World Wide Web
www.ed.gov

Gopher
gopher.ed.gov

The Department of Education home page provides information on national education goals; Education Department guides for teachers and researchers; national initiatives, including GOALS 2000 and the School-to-Work initiative; publications; press releases; a staff directory; funding opportunities; the Chronicle of Higher Education's *Academe This Week*, and links to other education sites and programs.

National Network of Regional Educational Laboratories

Gopher
gopher.nwrel.org

Links to a staff directory and information on the regional educational laboratories, and links to lab sites nationwide are contained at this site.

DEPARTMENT OF ENERGY

Advanced Computing Laboratory

World Wide Web
www.acl.lanl.gov

This site provides links to the DOE High Performance Computing Research Center, the Center for Research in Parallel Computation, Concurrent Supercomputing Consortium and the Computational Testbed for Industry. Includes an overview of projects under study at the ACL and an ACL users guide.

Argonne National Laboratory

World Wide Web
www.anl.gov

An overview of the ANL, *Argonne Week* (restricted to internal access), ANL divisions and major facilities, ANL information resources and the DOE Office of Information Technology Conference can be found here. Also lists job opportunities and results of the Rube Goldberg contest. Includes an "Ask a Scientist" section and information on virtual reality.

Brookhaven National Laboratory

World Wide Web
suntid.bnl.gov/bnl.html

BNL scientific and technical information is provided here. Also includes departments and divisions, including the Alternating Gradient Synchrotron, Computing and Communications, Advanced Technology, National Nuclear Data Center, Protein Data Bank and Safety and Environmental Protection.

Center for Computational Sciences

World Wide Web
www.ccs.ornl.gov

Gopher
gopher.ccs.ornl.gov

Information about the Oak Ridge National Laboratory Center for Computational Sciences, machine performance data, computing resources, consulting services and research are found here.

Continuous Electron Beam Accelerator Facility

World Wide Web
www.cebaf.gov

This site provides links to news and events; weekly project progress updates; contact information and CEBAF e-mail addresses; maps; and conferences and workshops. The Physics Division includes a link to the text of the Data Acquisition System, and the Accelerator Division provides pointers to Accelerator Operation, Accelerator Physics and the Free-Electron Laser. Includes a link to currently approved experiments.

Energy Efficiency and Renewable Energy Network

World Wide Web
www.eren.doe.gov

This is the central access point for information on renewable energy efficient technologies. Includes an "Ask an Expert" section. Links to other energy efficiency and renewable energy sites.

Energy Research Office

World Wide Web
www.er.doe.gov

This is the most complete site for providing links to other offices within the DOE. Provides information and links to various programs within the Office of Energy Research, including high energy and nuclear physics programs and the biological and environmental research program.

Fermi National Accelerator Laboratory

World Wide Web
fnnews.fnal.gov

Links to the Drell Panel full report, the Science of High-Energy Physics and the Insider's Guide to Lab Activities are provided here. Also includes general information and schedules.

Fossil Energy Office

World Wide Web
www.fe.doe.gov

This office provides information on coal, oil and natural gas projects, research, reports and programs; DOE fossil energy solicitations, trade promotion activity and information on how to do business with DOE.

Fusion Energy Sciences Program

World Wide Web
wwwof.er.doe.gov

U.S. laboratories, the National Ignition Facility and P.K. Kaw's 1992 Artsimovich Memorial Lecture on "Fusion Power, Who Needs It?" can be accessed here.

Fusion Research Center

World Wide Web
w3fusion.ph.utexas.edu/fre/

Link to the Virtual Poster Session here. It demonstrates the capabilities of the Web as a new method of sharing research. Provides links to titles and authors.

Lawrence Berkley Laboratory

World Wide Web
www.lbl.gov/LBL.html

Supplies an overview of the LBL, research news and highlights, scientific programs, technology transfer opportunities, computing services, library services publications, educational programs and job vacancies.

Lawrence Livermore National Laboratory

World Wide Web
www.llnl.gov

Links to LLNL news, general information, core competency requirements, programs, projects, centers and consortia and disciplines are available at this site. Also includes information on partnerships with the University of California, other laboratories and the private sector.

LLNL National Energy Research Supercomputer Center

World Wide Web
www.nersc.gov

This site provides links to bulletin boards; information on Super-computing '94; how to reach a consultant; computer and storage allocations; introductory documentation; activities in parallel processing; and an Energy Research Supercomputer users group.

Los Alamos National Laboratory

World Wide Web
www.lanl.gov

Links to *Labsource*, a newsletter on the University of California's management of three Energy Department laboratories, a phone book and lists of job openings can be found here. Also, information by division and subject, and a software archive are included.

LANL Advanced Computing Laboratory

World Wide Web
www.acl.lanl.gov/UserInfo/index.html

This site contains links to experimental hardware and software programs. Also, links to computational systems to assist the scientific and engineering community in solving complex problems insoluble through a traditional computing environment.

LANL Physics Information Service

World Wide Web
mentor.lanl.gov

Gopher
mentor.lanl.gov

Text files on nuclear and particle physics, including relevant papers and abstracts, can be found here.

LANL T-2 Nuclear Information Service

World Wide Web
t2.lanl.gov

Gopher
t2.lanl.gov

The Nuclear Theory and Applications Group of the LANL Theoretical Division can be accessed here.

Mathematical, Information and Computational Sciences

World Wide Web
www.er.doe.gov/production/octr/mics/index.html

The Scalable Computing Laboratory, High Performance Computing Research Facility, Supercomputing Computations Research Institute, parallel processing, and advanced software technology and algorithms can be found here.

National Renewable Energy Lab

World Wide Web
info.nrel.gov

Search all menus on this server by keyword. Links to NREL personnel, news and events, doing business with NREL, research in progress and sources of energy-related information.

Oak Ridge National Laboratory

World Wide Web
www.ornl.gov

Gopher
gopher.ornl.gov

Information on research news, including partnerships with industry, schools and universities, and other DOE laboratories is available here. Also available are: contact information for ORNL staff; an ORNL technical calendar; and employment information and research programs listed by directorates, divisions, centers and offices, programs, technologies and facilities. Major projects also are listed.

Opennet

World Wide Web
apollo.osti.gov/html/osti/opennet/opennet.html

Access to more than 250,000 bibliographic references that have been declassified by the DOE since October 1, 1994 is available here. The database is searchable.

ORNL Environmental Sciences Division

World Wide Web
gopher.esd.ornl.gov

Gopher
gopher.esd.ornl.gov

The ORNL Environmental Sciences Division provides information on: evaluation of development; the effect of energy use on the environment; and event and publication information. Access is somewhat restricted.

Pacific Northwest Laboratory

World Wide Web
www.pnl.gov:2080

Describes the PNL and provides pointers to seminars, press releases, laboratories, electronic information and an overview of the PNL.

Princeton Plasma Physics Laboratory

World Wide Web
www.pppl.gov

An overview of the PPPL, including a description of research projects and resources.

Sandia National Laboratory

World Wide Web
www.sandia.gov

A description of the SNL, selected SNL projects, initiatives and facilities, and SNL technologies database and a phone book of SNL staff.

Scientific and Technical Information Office

World Wide Web
apollo.osti.gov/html/osti

Links to the Electronic Document Library, including DOE reports, electronic exchange news notes and human experimentation documents. Also links to the Office of Environment, Safety and Health progress assessments page; the DOE Standard Generalized Markup Language newsgroup; and a congressional question-and-answer database.

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Cancer Institute (NCI) Cancernet

World Wide Web
wwwicic.nci.nih.gov/clinpdq/canet.htm

Gopher
gopher.nih.gov
path: Health and Clinical Information

Information on cancer and cancer treatment, such as National Cancer Institute statements on specific cancers and their treatment, discussions of screening for various cancers, articles about cancer prevention and information about specific drugs. CancerLit, a database of citations from and abstracts of scholarly articles about cancer and cancer treatment, may be accessed by topic or keyword.

NCI International Cancer Information Center

World Wide Web
wwwicic.nci.nih.gov/clinpdq/canet.htm

Information on ICIC projects with links to other NCI and NIH sites.

NCI Laboratory of Mathematical Biology

World Wide Web
www.lmmb.ncifcrf.gov

Research information on computational structural biology, GELLAB-II, Protein Disease Database, RNA structure analysis and other sources. Links to relevant software.

National Center for Biotechnology Information

World Wide Web
www.ncbi.nlm.nih.gov

Biotechnology information, including molecular biology, biochemistry and genetics, and relevant software. Includes library of articles and collected databases deposited with the NCBI.

National Center for Food Safety and Applied Nutrition

World Wide Web
vm.cfsan.fda.gov/list.html

Biology and chemistry collections and computer and PC information resources, including teleconferences. Links to information on imports and exports, women's health, food and cosmetics labeling, CFSAN advisory committees, and seafood. Includes a Regulatory Fish Encyclopedia searchable by common or scientific name.

National Center for Toxicological Research

Gopher
gopher.nctr.fda.gov

Files on environmental toxins and the toxicity of products, and links to other sites, including the National Toxicology Program, Computational Biology at Johns Hopkins University and the IUBIO Biology Archive at Indiana University. Also includes scientific research on determining the FDA's current and future regulatory needs, especially regarding toxicity and genetic aberrations.

National Health Information Center

World Wide Web
nhic-nt.health.org

Searchable database to put health professionals and consumers with health questions in touch with organizations able to provide answers. Also includes links to toll-free numbers for health information, federal health information centers and clearinghouses, and a directory of federal work-site health promotion initiatives.

National Institutes of Health

World Wide Web
www.nih.gov

Gopher
gopher.nih.gov

Access to biomedical information on health issues and clinical protocols, NIH grants and contracts, research opportunities, molecular biology, special interest groups, NIH calendar of events, NIH library online information services and the information superhighway ON-RAMP. Includes NIH's Gopher Users Guide.

National Heart, Lung and Blood Institute

Gopher
gopher.nhlbi.nih.gov

List of advisory panels, articles, program announcements, research guidelines and proposals. Minutes of the institute's last meeting. Updated reports on the artificial heart and the National Heart and Lung Advisory Council, and technology transfer information.

National Institute of Allergy and Infectious Diseases

World Wide Web
www.niaid.nih.gov

Gopher
gopher.niaid.nih.gov

Information for researchers and administrators, AIDS-related information, NIAID press releases, Centers for Disease Control Daily AIDS Summaries and NIAID Protocol Recruitment Sheets.

National Institute of Diabetes and Digestive and Kidney Disease

World Wide Web
www.niddk.nih.gov

Training, research and funding information on diabetes, digestive diseases and nutrition, endocrine disorders, kidney disorders and urologic disorders.

National Institute of Environmental Health Sciences

World Wide Web
www.niehs.nih.gov

Gopher
gopher.niehs.nih.gov

Directories containing files on NIEHS research grants and contracts, intramural research, library and technical information, and information on environmental health pers-pectives, NIEHS directory and organizational structure.

National Institute of Mental Health

World Wide Web
www.nimh.nih.gov/home.htm

Gopher
gopher.nimh.nih.gov

Medical information, computer archives for various operating systems, press advisories, contract and grant information, and calls for volunteers for studies.

National Library of Medicine

World Wide Web
www.nlm.nih.gov

Gopher
gopher.nlm.nih.gov

HyperDOC, the NLM server, includes NLM and NIH visitor information, current events, and research and development activities of the Lister Hill National Center for Biomedical Communications and the National Center for Biotechnology Information.

National Toxicology Program

World Wide Web
ntp-server.niehs.nih.gov

Gopher
ntp-ftp-server.niehs.nih.gov:70/1

Search the status of all NTP studies by keyword. Full text of abstracts of NTP long-term cancer studies, reproductive studies and teratology studies. Also, the annual plan and contact and event information.

Substance Abuse and Mental Health Services Administration

World Wide Web
www.samsha.gov

Information on SAMSHA programs and services, statistical information on drug abuse, SAMSHA's strategic plan and mission, and event and conference information.

DEPARTMENT OF THE INTERIOR

National Biological Service

World Wide Web
www.nbs.gov

Information about funding, information-sharing programs with the NBS; job listings, press releases, reports and online report ordering; and statements and speeches. Links to NBS centers and cooperatives.

National Park Service

World Wide Web
www.nps.gov

Background information, contact list, publications, information on individual national parks, and NPS data and information on the American Civil War Battlefield Protection Plan, National Archeological Database, Prairie Grove Battlefield and NPS Geospatial Clearinghouse.

National Wildlife Refuge Service

World Wide Web
bluegoose.arw.r9.fws.gov

Text files on the service's mission, goals, history and employment; addresses; information on wilderness areas; cultural resources management; legislative information; and habitat management, wildlife management and public-use management programs.

U.S. Geological Survey

World Wide Web
www.usgs.gov

Links to a geological map of the United States; press releases and publications; earthquake information; the Earth Science Field Corps; the Mineral Resources Data System; overviews of data; environmental research; hazards; and an "Ask a Geologist" e-mail service.

USGS Atlantic Marine Geology

World Wide Web
marine.usgs.gov

Marine geology and environment data from USGS sites, plus information on physical site locations, meetings and events.

DEPARTMENT OF TRANSPORTATION

Bureau of Transportation Statistics

World Wide Web
www.bts.gov

Gopher
gopher.bts.gov

General information on the BTS, a description of BTS products, a form for ordering products and the Transportation Statistics Annual Report. Also allows searches of the State and Metropolitan Analysis for Regional Transportation (SMART) database. Includes reports, tables and graphs on all modes of transportation; air carrier incident information; and commuting information. Link to the BTS bulletin board system.

Federal Aviation Administration

World Wide Web
www.faa.gov

Vacancy announcements; information on aviation safety; regional information for Alaska, Milwaukee and the Northwest mountain region; news, products and programs; and links to FAA bulletin boards.

ENVIRONMENTAL PROTECTION AGENCY

World Wide Web
www.epa.gov

Gopher
gopher.epa.gov

Links to "Access EPA," a directory of public sector environmental resources. Includes EPA dockets, clearinghouses and hotlines, environmental databases, state environmental libraries, and scientific models. Links to wetlands information, the EPA Public Information Center; EPA offices and regions; press releases, a calendar and announcements; grant, contract and job information; and rules, regulations and legislation. The gopher server is searchable by keyword.

EPA Information Locator

World Wide Web
earth1.epa.gov/Contacts

Central hub for finding EPA information. Links to INFOTERRA, an international environmental referral and research network; EPA Library and Information

Services; the EPA National Online Library System; EPA gophers; the Technology Transfer Network Bulletin Board Service; and the Cleanup Information Bulletin Board System.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

World Wide Web
www.nasa.gov

Links to NASA news, subjects of public interest, NASA strategic plan and other NASA strategies, policies and public affairs information, NASA online educational resources and NASA information sources by subject. Additional links to NASA-wide programs, NASA commercial technology and other aerospace resources. Information on NASA centers located in the United States via map.

NASA Ames Research Center

World Wide Web
www.arc.nasa.gov

Links to the wind tunnel complex, NASA-wide programs and activities at Ames, CA, general Ames information, information by organization and a personnel search feature.

NASA Center for Aerospace Information

Gopher
gopher.sti.nasa.gov

Links to the NASA Center for Aerospace information, current aerospace notices, STI program working groups and keyword search of the NASA RECON 1990-1994 abstracts.

NASA Center for Computational Sciences

World Wide Web
nccinfo.gsfc.nasa.gov/NCCS

Links to the high-performance scientific computer facility at Goddard Space Flight Center. Provides computing resources and support services for scientific research.

NASA Dryden Flight Research Center

World Wide Web
www.dfrf.nasa.gov/dryden.html

Links to educational programs; the offices of External Affairs and Procurement; flight research projects and various research facilities, such as the Thermo-structural Laboratory, Western Aeronautical Test Range and the Flow Visualization Facility.

NASA Earth Observing System

World Wide Web
eos.nasa.gov

Discover, retrieve and display documents and data about the Earth Observing System. Information on EOS issues and access to the Payload Panel Report. Additional resources to be added include Algorithm Theoretical Basis Documents, the *EOS Reference Handbook*, the EOS Directory, images from various satellites and airborne instruments, and cross-references to other EOS-related information servers on the Internet.

NASA Goddard Space Flight Center

World Wide Web
hypatia.gsfc.nasa.gov/GSFC_homepage.html

Central guide for many NASA projects and services. The NASA Information by Subject section connects to servers by subject category. The map links to the homepages of NASA centers and servers of other national and international space agencies. Also includes a personnel locator, which finds addresses, phone numbers, and e-mail addresses for NASA staff; and a public affairs section that provides access to satellite images and information about space shuttle missions and astronauts. Gopher servers, including the

Network Applications Information Center, scientific and technical information, Computer Software Management Information Center, and information on small shuttle payloads.

NASA Headquarters

World Wide Web
www.hq.nasa.gov

Includes information on the Space Physics Division, travel rates, the NASA Commercial Technology Network and Spacecraft and Remote Sensing Technology. Link to an experimental Web server, provided by Mission to Planet Earth. Site also includes pointers to NASA budget information.

NASA High Energy Astrophysics Science Archive Research Center

World Wide Web
legacy.gsfc.nasa.gov

Gophers
Legacy.gsfc.nasa.gov

Links to relevant databases, generally requiring specific software packages.

NASA Jet Propulsion Laboratory

World Wide Web
www.ppi.nasa.gov

Links to news releases and flashes, online tours, image and information archives and technical organizations. This is also the site with the most comprehensive information about comet activity.

NASA Johnson Space Center

World Wide Web
www.jsc.nasa.gov

Links to a bulletin board, job and contract opportunities, and the homepages of several contractors.

NASA K–12
National Research and Education Network

World Wide Web
quest.arc.nasa.gov

Gopher
quest.arc.nasa.gov

Materials aimed at elementary, middle and high school and community college teachers. Information includes science lesson plans and curricular guides; guides to Internet science sources; and database, image and text files to support special NASA education projects.

NASA Kennedy Space Center

World Wide Web
www.ksc.nasa.gov/ksc.html

Gopher
www.ksc.nasa.gov

NASA Gopher, Web and telnet sites are organized by center and project under Additional NASA Services section. The historical archive section provides comprehensive information about past space missions, listed by project name and mission number; shuttle missions; planetary probes and upcoming missions. This site gives access to images transmitted from space, lists of mission objectives and accomplishments, and biological data about crew members. The FAQ section includes shuttle mission schedules, an article about how to become an astronaut and instructions for obtaining a launch pass.

NASA Laboratory for Terrestial Physics

World Wide Web
ltpsun.gsfc.nasa.gov

Gopher
ltpsun.gsfc.nasa.gov

Links to internal terrestial physics lab information, including newsletters and events.

NASA Langley Research Center

World Wide Web
mosiac.larc.nasa.gov/larc.html

Links to LaRC-sponsored conferences, workshops and symposia; find LaRC personnel and the LaRC cafeteria menu. Additional links to Langley Technology Access Services, including the Technology Experts Locator Service, the Langley Technical Report Server and the Technology Applications Group.

NASA Liftoff to Space Exploration

World Wide Web
liftoff.msfc.nasa.gov

Information on Astro-2 experiments and discoveries. Read the Astro-2 log and find out about the shuttle flight crew. View stars, galaxies, planets and quasars in ultraviolet light.

NASA Marshall Space Flight Center

www.msfc.nasa.gov

General information on the Marshall Space Flight Center, including a list of projects, such as Spacelab.

NASA Network Information Center

World Wide Web
nic.nasa.gov

Gopher
nic.nasa.gov

Network resources relevant to users of NASA information.

NASA Shuttle Mission

World Wide Web
shuttle.nasa.gov

Links to experiments on the second flight of the sixth space shuttle mission, Columbia. Information on the Microgravity Laboratory, which will be used to investigate the near-weightless environment on Columbia and how it affects fluids, combustion, material structures and protein crystals, and to demonstrate technology needed to further microgravity research on the shuttle and the International Space Station. Also, information on the countdown, launch, orbit, landing, crew, photos and press releases.

NASA Space Calendar

World Wide Web
newproducts.jpl.nasa.gov/calendar

Lists dates of scheduled launches, anniversaries of important space missions, birthdays of important astronomers, and astronomical highlights, such as eclipses and asteroid flybys. Also, links to information on many launches, past space missions and biographies of astronomers.

NASA John C. Stennis Space Center

World Wide Web
www.ssc.nasa.gov

Instructions for doing business with Stennis Space Center and information on operational propulsion programs, remote sensing and the center's economic impact on the Hancock, County, MS, region.

NASA Telnet Services

World Wide Web
www.sti.nasa.gov/telnet.html/

NASA sites that permit telnet access, including the Compton Gamma Ray observatory, the Lunar and

BEST COPY AVAILABLE

Planetary Institute, the NASA Extragalactic Database System, Planetary Data Systems, and NASA SPACELINK.

NASA Welcome to Planets

World Wide Web
stardust.jpl.nasa.gov/planets

NASA images of each of the planets in this solar system and brief statistical information on each planet. Click on the image of a particular planet and receive summary information about the planet and selected images.

NASA World Wide Web Servers

World Wide Web
www.sti.nasa.gov/www.html

Links to NASA World Wide Web Servers, organized by center and project. Some links include Web servers for Library X, Mechanical Design and Analysis, F-16XL High Lift Flight Experiments, Advanced Vehicles Division, NASA Langley HPCC K-12 homepage, Planetary Data System and the STELAR Project.

National Center for Atmospheric Research

World Wide Web
www.ucar.edu

Gopher
gopher.ucar.edu

Climate, global dynamics and other atmospheric information from federally funded research organizations. Sponsored by the National Science Foundation.

National Center for Supercomputing Applications

World Wide Web
www.ncsa.uisa.uiuc.edu

Gopher
gopher.ncsa.uiuc.edu/

Links to a university-based computer facility and research center designed to serve the national computational science and engineering community.

NATIONAL SCIENCE FOUNDATION

World Wide Web
www.nsf.gov

Gopher
gopher.nsf.gov

Links to NSF staff directory, which can be searched by name or organization, and a database of NSF awards and publications. Also includes the full text of selected publications, the NSF publications directory, a film and video catalog, annual reports, grants policy manual, a guide to NSF programs, information on cooperative agreement conditions, press releases, activities and job vacancies.

NSF Center for Biological Timing

Gopher
minerva.acc.Virginia.edu

Links to academic investigative efforts on biological timing, including biological mechanisms controlling sleep and hormones.

NSF Long-Term Ecological Research Network

Gopher
Internet.washington.edu

Links to the NSF Division of Biotic Systems and Resources. Includes research information on long-term biological phenomena.

NSF Metacenter for Computational Science and Engineering

World Wide Web
pscinfo.psc.edu/MetaCenter/MetaCenterHome.html

Links to NSF's Science and Engineering Center. Lists computing resources, software available at Metacenter sites, affiliates and other relevant resources.

NSF Science and Technology Information System

Gopher
stis.nsf.gov

Bulletin board with full text access to NSF publications and awards abstracts. Registration required.

SMITHSONIAN INSTITUTION

World Wide Web
www.si.edu

Links to the Center for Earth and Planetary Studies, the Freer Gallery of Art, the Arthur M. Sackler Gallery, the National Air and Space Musuem, the National Museum of the American Indian, the Natural History Web and the Smithsonian Institution photo server. There is an alternative site address located in California at **www.si.sgi.com**.

Smithsonian Center for Earth and Planetary Studies and National Air and Space Museum

World Wide Web
ceps.nasm.edu:2020/homepage.html

Links to servers with images of Comet Shoemaker-Levy 9 collision with Jupiter and the Space Shuttle Repository and Regional Planetary Image Facility.

Smithsonian Institution Research Information System

Gopher
siris.si.edu

Access to research catalogs maintained by Smithsonian Institution libraries, archives and research units. Catalogs contain information about books, serials, archives, manuscripts, films, recordings, paintings and sculptures.

Smithsonian Natural History Museum

World Wide Web
www.nmnh.si.edu

Gopher
nmnhgoph.si.edu/11

Directories and files on botany, vertebrate and invertebrate zoology, paleontology and other biological gophers. Field study program announcements.

Appendix A

Challenge Grants for Technology in Education

The Office of Educational Research and Improvement currently funds 19 consortia, each of which has a specific subject-matter or geographic focus. They are located in the following school districts:

San Diego, California
San Diego Unified School District
The "Triton Project" will improve student performance in mathematics and science, using a combination of technologies in an active learning curriculum with an ocean exploration theme. San Diego public schools are to be networked with each other and with several area museums, research centers and aquariums.

Richard Fabian
San Diego Unified School District
4100 Normal Street
San Diego, CA 92103
(619) 225-3416
richard_fabian@qm.sdcs.k12.ca.us

Redwood City, California
San Mateo County Office of Education
Working through a consortium, Silicon Valley high-tech corporations are providing infrastructure support for reform plans that high schools have developed with their feeder elementary and middle schools. The Challenge Grant provides curriculum support and teacher training, consistent with this overall effort.

Joe Becerra
San Mateo County Office of Education
101 Twin Dolphin Drive
Redwood City, CA 94065
(415) 802-5444
Fax: (415) 802-5665

Dover, Delaware
Capital School District
Telecommunications will connect families and schools, extending the time and place for learning and improving communications between parents and teaches. Content is

focused on reading and arithmetic in early elementary grades, principally through cost-effective video based on set-top television boxes.

William McGlumphy
Capitol School District
945 Forest Street
Dover, DE 19904
(302) 672-1521
Fax: (302) 672-1714
wmcglum@udel.edu

Waukegan, Illinois
Waukegan Community Unit School District 60
The consortium is working to address problems that the district's schools face as a result of high truancy rates, widespread poverty, high mobility, and low academic achievement by implementing a community mathematics and science program that relies on innovative uses of technologies. The project has strong school-home, school-community, and school-work components, and provides extensive professional development training.

Elaine Armani
Waukegan C U School District 60
1201 North Sheridan Road
Waukegan, IL 60085-2099
(847) 360-5440
Fax: (847) 360-5628
armani708@aol.com

Anderson, Indiana
Anderson Community School Corp.
The consortium of local and state agencies in Indiana is using innovative technology to raise the academic achievement of more than 3,000 underchallenged and at-risk students and their families in six elementary and two middle schools. As part of this effort, the school district will build on previous activities in which a specially trained cadre of teachers and principals temporarily assume the role of entire school faculties to enable educators to participate in professional development activities.

Terri Austin
Anderson Community School Corp.
30 West 11th Street
Anderson, IN 46016
(317) 641-2151
taustin@acsc.net

Indianapolis, Indiana
Indianapolis Public Schools

Utilizing the experience and resources of Ameritech, a cellular service provider, the consortium is developing an affordable, scaleable and equitably distributed telecommunication infrastructure linking the North Central Regional Educational Laboratory (NCERL), 25 schools in Indianapolis, 25 schools in Chicago, and 3 in Walled Lake, Michigan. The new network, which directly benefits about 90,000 students, delivers research-based curriculum and technical support in participating schools, and provides professional development activities for the program's teachers.

John Kern
Indianapolis Public Schools
801 North Carrolton Avenue
Indianapolis, IN 46202
(317) 226-4122
Fax: (317) 226-3130
kern@ips.k12.in.us

Natchitoche, Louisiana
Natchitoche Parish Public Schools

The consortium is developing comprehensive programs that use telecommunication to increase participation in high-tech learning by underserved K-12 students in five Louisiana districts. The project will integrate Internet resources and K-12 instruction at five pilot sites across the state, and expects to develop transferable models for providing underserved students access to technology. Over five years, the project is expected to serve more than 174,000 students in 48 schools and 19 communities.

Kerry Davidson
Louisiana Systemic Initiative
1885 Wooddale Boulevard, 11th Floor
Baton Rouge, LA 78006-1511
(504) 342-4253
Fax: (504) 342-9318
e-mail: davison@regents.state.la.us

Baltimore, Maryland
Baltimore City Public Schools

The Baltimore Learning Communities project uses distance learning, interactive cable TV and the Internet to connect schools to homes, places of work, and the community at large. This project provides extensive professional development for teachers, directly involves parents in the education process, and extends a wide range of new educational opportunities to more than 38,000 students in the middle and high school levels.

Michael Pitroff
Baltimore City Public Schools
2500 East Northern Parkway
Baltimore, MD 21214
(410) 396-7607
Fax: (410) 426-6750
e-mail: mpitroff@umd5.umd.edu

White Cloud, Michigan
Newaygo County Intermediate School District

The consortium has been established to develop and maintain an advanced fiber optic cable telecommunications network that will enhance educational opportunities for the county's disadvantaged students and adults, improve the professional development available to the district's teaching staff, and provide a delivery method for improved curricula. The network also supports a unified effort among all county service agencies as they seek to address the social, educational and economic needs of county residents, and supports existing data, video and voice communication capabilities available to all county residents.

Larry Ivens
Newaygo County Intermediate School District
4645 West 48th Street
Fremont, MI 49412
(616) 924-0380
Fax: (616) 924-6311

Omaha, Nebraska
Westside Community Schools

The consortium is a multi-element education program that uses technology to bring museums and other educational resources to K–12 classrooms in Nebraska and other states. The program, which is engaged in creating an integrated arts-focused curricula in all core subject areas, targets more than 41,000 students in both urban and rural settings and has a strong professional development component.

Susan Manuel
Westside Community Schools
909 South 76th
Omaha, NE 68114-4599
(402) 390-2124
Fax: (402) 390-2136

Manchester, New Hampshire
Manchester School District

The "Manchester Challenge" project is integrating instructional technologies into curricula of the district's elementary and high schools. Project technologies, which connect all schools throughout the district, include instructional television, satellite broadcasts, multimedia telecomputing, and administrative applications, and benefit more than 28,000 students. All participating educators are provided the equipment, training, time and ongoing support to enable them to use information technology effectively.

Terry Bullard
Manchester School District
196 Bridge Street
Manchester, NH 03104
(603) 624-6300
Fax: (603) 624 6337
tbullard@pop.ma.ultranet.com.

Laguna, New Mexico
Pueblo of Laguna Department of Education

"Four Directions" is an education reform project that blends American Indian culture with new educational technologies to revitalize curricula and instruction in Bureau of Indian Affairs (BIA) schools. The project is being piloted in eight schools representing tribal groups in eight states, and ultimately will expand to 24 BIA schools located throughout the country. The project involves K-12 students, parents and members of the community, and provides professional development opportunities for teachers.

Gilbert Sanchez
Pueblo of Laguna
Department of Education
P.O. Box 207
Laguna, NM 87206
(505) 552-6008
Fax: (505) 552-6398

Cuyahoga Falls, Ohio
Summit County Educational Service Center
The consortium has developed a program through which students use technology to complete substantive new work that meets high educational standards set forth in new local curricula and the Ohio K-12 competency-based education standards. The project has a strong professional development component and benefits more than 88,000 students in 18 school districts, one-third of which have high percentages of economically and educationally deprived students.

Steve Snyder or Gay Fawcett
Summit Educational Service Center
420 Washington Avenue, Suite 200
Cuyahoga Falls, OH 44221
(330) 945-5600
Fax: (330) 945-6222
e-mail: steves@summit.k12.oh.us
Gfawcett@summit.k12.oh.us
home page: www.summit.k12.oh.us

Philadelphia, Pennsylvania
School District of Philadelphia
This consortium has developed a program to invigorate K-12 and adult education programs through the imaginative use of educational technologies. Incorporated within the district's systemic reform effort, the program uses many of the latest developments in telecommunications, multimedia, and computer instruction to build new teaching and learning processes within small learning communities. The resulting "Virtual Schools" represent a fundamental and radical transformation of teaching to emphasize interaction and inquiry for the more than 55,000 students who will benefit in the first five years. The program has strong school-home, school-community, school-work components as well as effective support for professional development.

Steven Guttentag
School District of Philadelphia
Office of Categorical Support
21st Street South of the Parkway, Room 230
Philadelphia, PA 19103
(215) 299-7802
Fax: (215) 299-7417
e-mail: gutten@sdp2.philsch.k12.pa.us

Towanda, Pennsylvania
Towanda Area School District
"New Vision" is a consortium that is designed to demonstrate the dynamic abilities of emerging technologies to expand and improve educational opportunities in rural, remote, poor school districts. The consortium is establishing "distance learning centers" at 23 school districts, six higher education institutions and the State Museum of Pennsylvania, which are being linked electronically to a network of 40 schools and agencies. These schools and agencies will be able to offer high-level classes that are not commonly offered due to low enrollment, and exemplary teachers to cover hard-to-fill positions in a number of school districts at once, conduct unique student workshops and offer advanced-placement courses. The project will benefit more than 54,000 students in three states and contains a strong professional development component.

Daniel M. Paul
Towanda Area School District
101 North Fourth Street
Towanda, PA 18848
(717) 265-9894
Fax: (717) 265-4881

Sturgis, South Dakota
Black Hills Special Services Cooperative
This consortium has organized a statewide community-focused education program built around introducing innovative technologies in a statewide redesign of K-12 curricula, instruction and assessments, and capitalizing on new technologies to promote student achievement. The program is designed to impact more than 14,000 rural students in the first year alone, and has a strong professional development component.

Jim Parry
Black Hills Special Services Co-op
1925 Plaza Boulevard
Sturgis, SD 57702
(605) 394-1876
Fax: (605) 394-5315
jparry@sdtie.sdserv.org

El Paso, Texas
Socorro Independent School District
The consortium is using technology to rejuvenate the city's schools. The program is designed, among other things, to produce ten restructured partner schools and a teacher preparation institution, fully connected to the Internet and its resources; and teachers

who integrate acquired technologies and challenging standards into the curriculum, and who serve as teacher trainers at 70 other schools. The program will benefit more than 10,000 students from impoverished neighborhoods, and will enable 1,000 parents to use laptop computers to provide them with technology knowledge and skills.

Ben DeBellis
Socorro Independent School District
12300 Eastlake Drive
El Paso, TX 79927
(915) 860-3438
Fax: (915) 858-1520
e-mail: bdebellis@socorro.k12.tx.us

Price, Utah
Southeast Education Service Center
This telecommunications project is providing educational opportunities to students who live in poor, rural, or culturally disenfranchised communities. The consortium builds upon existing telecommunications networks, and adds a World Wide Web capability that enables schools to develop on-line educational resources and applications. State parks and national monument resources will be used to engage students in active learning projects. The project has a strong professional development component that focuses on multiple uses of the Internet.

Lynn Bilis
Southeast Education Service Center
65 East 400 North
Price, UT 84501
(801) 637-1173
Fax: (801) 637-1178
e-mail: lynn@m.sesc.k12.ut.us

Montpelier, Vermont
Montpelier School System
The consortium is using multimedia telecommunications to expand portfolio and performance-based assessment of student achievement in the arts. Based on the state's Common Core Framework for Curriculum and Assessment, this technology creates a "WEB" of evidence of student performance in multiple learning domains represented by sound, graphics, movement, data and text. The project also puts emphasis on the professional development needed to use this technology effectively.

David Gibson
Montpelier School District
58 Barre Street
Montpelier, VT 05602
(802) 223-6366
Fax: (802) 223-9227
e-mail: gibson@quark.vsc.edu

Appendix B

Regional Technology in Education Consortia

The U.S. Department of Education established the Regional Technology in Education Consortia (R·TECs) program in the fall of 1995 to help states, districts, schools, adult literacy centers and other educational institutions ("educational entities") use advanced technology to support improved teaching and student achievement. The R·TECs' role in educational technology is unique in two ways: their emphasis is regional, and their primary goal is to ensure that technology is used effectively to support school reform. R·TEC program strategies include professional development, technical assistance and information dissemination.

Professional development for teachers and other educators:
The R·TECs work with deans and faculties of colleges of education, state education agencies, professional associations, and accreditation agencies to improve pre-service education so that new teachers will arrive in their classrooms able to use technology successfully for sustained, challenging student learning activities that are collaborative, multidisciplinary, and relevant to real-world tasks. R·TECs, state education agencies (SEAs), local education agencies (LEAs) and schools also work together to plan and implement professional development programs for in-service faculty to help them integrate technology seamlessly into the curriculum in ways most conducive to engaged learning and student achievement. Furthermore, to fulfill their mission to provide career-long professional development and support of teachers and other educators, R·TECs are developing educational materials and distance learning opportunities.

Technical assistance:
The R·TECs assist educational entities in developing and implementing educational technology plans that draw upon existing or planned resources, and anticipate future needs and technological innovation. These comprehensive planning efforts address all aspects of integration of educational technologies into teaching and learning (e.g., equipment acquisition and maintenance, professional development, integration of technology within the curriculum, school administration, management of the educational process, and other community concerns). The R·TECs make opportunities available for states and districts to meet with each other to benefit from collective experience; the R·TECs also assist districts and schools to develop support for technology efforts from communities, businesses and parents.

Dissemination of information and resources:
The R·TECs identify and make known vital information in a variety of formats on planning for acquiring technology; on best practice, R&D solutions, and "cutting edge" applications of technology in education; and on using technology both for specific content areas and for educational administration. The consortia seek out usages of technology that are replicable, widely applicable, and scaleable, also anticipating future capabilities, uses and needs.

The R·TECs work in a complementary and collaborative way with technical assistance providers funded by the U.S. Department of Education--such as the Comprehensive Regional Assistance Centers, the Eisenhower Regional Consortia for Mathematics and Science Education, and the Regional Educational Laboratories--and with other nationwide educational technology support efforts, such as TechCorps.

For further information, see the attached summaries or contact:

Catherine Mozer Connor, Program Officer
Regional Technology in Education Consortia Program
U.S. Department of Education
Office of Educational Research and Improvement
ORAD/SLSD - Room 506a
555 New Jersey Avenue, N.W.
Washington, D.C. 20208-5644
Phone: (202) 219-8070
E-mail: cconnor@inet.ed.gov

Northwest R·TEC Region

AK
WA
MT
OR
ID
WY

1350 LEAs
2.1 Million K-12

Current Consortium Member Organizations
Northwest Regional Educational Laboratory
Washington Education Service District 101
Alaska Department of Education
Idaho Department of Education
Montana Office of Public Education
Oregon Department of Education
Washington Office of State Superintendent of Public Instruction
Wyoming Department of Education

Emphasis:

I. The activities of the consortium in each member state will be described in an annual memorandum of agreement with each state education agency, which will specify priorities in topics and services in the major areas of staff development, technical assistance, and information dissemination. The activities will be coordinated with, support, and enhance existing delivery mechanisms in those areas.

II. Regionwide delivery of some staff development and other services will be accomplished through the distance education system of the Pacific Star Schools Partnership and other distance delivery systems to ensure availability in rural and remote sites.

III. The major current priorities of the region in the application of electronic educational technologies are the integration of technology in the K–12 curriculum, and planning and implementing telecommunications networks in schools and districts.

Seymour Hanfling
Director, Technology Program
Northwest Regional Educational Laboratory
101 South West Main Street, Suite 500
Portland, OR 97204-3297
Phone: (503) 275-9500
Fax: (503) 275-9584
E-mail: hanflins@nwrel.org

North Central R·TEC Region

3561 LEAs
7.6 Million K-12

ND
MN
SD
WI
MI
IA
IL
IN

Current Consortium Member Organizations:

North Central Regional Educational Laboratory
& Mathematics & Science Eisenhower Consortium
High Plains Consortium for Mathematics and
Science Education, McREL
Argonne National Energy Laboratory
The Great Lakes Collaborative
Indiana University, Center for Educational Excellence
National Center for Adult Literacy
National Center for Supercomputing Applications (NCSA), at the University of Illinois

Emphasis:

I. Establishing a regional technology cooperative to develop voluntary provisions for reducing technology costs, suggest standards for technology products, and increase funding opportunities to obtain technology products and services.

II. Providing technical assistance to state and local education agencies in cooperation with existing state technical assistance groups. Technical assistance will assess current technology needs, support local planning to integrate technology into teaching and learning, and identify ways to overcome specific problems in implementing technology plans.

III. Developing information resources on technology applications and integration through print, computer databases, and a range of telecommunications options.

IV. Providing professional development opportunities for educators in cooperation with existing state professional development providers.

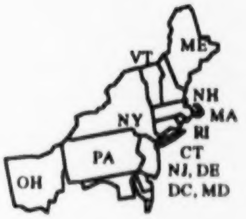
V. Strengthening technology use and training in teacher prep programs.

VI. Analyzing and developing technology perspectives to inform and support state policy and leadership decisions.

VII. Developing advanced technology applications and regional technology infrastructure to enlarge the range of technology products and services for schools and improve communication between technology systems within and between states.

Rafael Ramirez, Director
North Central Regional Technology in Education Consortium
North Central Regional Educational Laboratory
1900 North Spring Road, Suite 300
Oak Brook, IL 60521-1480
Phone: (708) 218-1272
Fax: (708) 218-4989
E-mail: rramirez@ncrel.org

Northeast R·TEC Region



3776 LEAs
11.9 Million K-12

Current Consortium Member Organizations

City University of New York:
Research Foundation
Brown University
& the Educational Alliance
University of Maryland at College Park:
College of Education
The Ohio State University (Eisenhower National
Clearinghouse Group)
Education Development Center, Inc. (EDC)
Technical Education Research Center (TERC)

Emphasis:

I. Build upon the experiences of large, urban centers to forge links to existing educational reform initiatives by identifying significant issues, outstanding classroom practices, and innovative curricula.

II. Approach issues on a regional basis by drawing on the perspectives, ideas and experiences of state-based agencies that influence policy, planning, and implementation.

III. Develop a repository and dissemination capability for:
- mathematics, science, humanities, and social science curricula
- content connections
- applications documentation
- action research
- teachers' and children's stories
- online resources (i.e. hypermedia, network, and WWW)

Bonnie Brownstein and Michael Ribaudo, Co-Directors
NetTech–Northeast Regional Technology
in Education Consortium
City University of New York
555 West 57th Street
New York, New York 10019
Phone: (212) 541-0972
Fax: (212) 541-0357
E-mail: blbbh@cunyvm.cuny.edu

Pacific/Southwest R·TEC Region

Current Consortium Member Organizations

California State University at Long Beach: Center for Language Minority Education and Research

ARC Associates

National Diffusion Network, California State Facilitator

TEAMS Distance Learning

TeleLearning InfoSource (TELIS) Foundation

ASSET

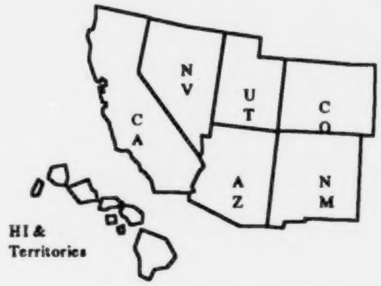
LINCT Coalition

CompuMentor

The Education Coalition (TEC)

California Software Clearinghouse

1565 LEAs
8.3 Million K-12



Emphasis:

I. Integration of technology to support high quality multilingual, multicultural education in perhaps the most diversely populated R·TEC region. This focus also includes special attention to technology integration which provides access to low-income and rural communities.

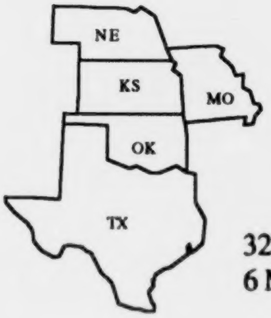
II. The focus of this consortia is on the communitywide nature of school reform and technology integration and access. Thus, the R-TEC has a special focus on strategies to include the participation of diverse parents, community-based organizations, and community access networks.

III. The R-TEC focuses on multilayered strategies for technology access and integration, which include developing sound technology integration plans, recruiting and placing technology volunteers, developing teacher collaborative inquiry groups through mentoring and training, working with colleges of education, working on technology solutions for administrators and principals, working with parents and community members, and working with state education agencies to foster local reform efforts and regional cooperation with a focus on diversity, equity, and access.

Kevin Rocap, Director
Southwest & Pacific Regional Technology in Education Consortium
Center for Language Minority Education and Research
c/o College of Education, California State University, Long Beach
1250 Bellflower Boulevard
Long Beach, CA 90840-2201
Phone: (310) 985-1570
Fax: (310) 985-4528
E-mail: krocap@csulb.edu

South Central R·TEC Region

Current Consortium Member Organizations:
University of Kansas: Center for Research on Learning, School of Education
Texas A&M University–College Station: College of Education
University of Oklahoma–Norman: College of Education
University of Missouri–Columbia: College of Education
University of Nebraska–Lincoln: Teachers College
Kansas State Board of Education



3268 LEAs
6 Million K-12

Emphasis:

I. University driven. All of the partners, except one (the Kansas SEA), are schools of education in major universities that have strong professional development schools. The partners will collaborate with other colleges and universities in their states, thus leveraging existing training resources throughout the region.

II. Strong representation of special education resources. The project is affiliated with the Center for Research on Learning in the Department of Special Education at the University of Kansas. Though services to students with special needs were not featured as an area of focus in the application, they are a strength of the South Central Consortium.

III. History of development of web-based tools. Interdisciplinary research and development teams consisting of educators, computer scientists, and computer engineers have collaborated for almost a decade in the development of tools for organization, storage, and retrieval of instructional resources on the Internet.

Jerry D. Chaffin and Ron Aust
Co-Directors, South Central
Regional Technology in Education Consortium
Center for Research on Learning
University of Kansas
Suite 2021 - Dole Human Development Building
Lawrence, KS 66045
Phone: (913) 864-0699 or 864-4954
Fax: (913) 864-4149
E-Mail: jchaffin@quest.sped.ukans.edu

Southeast & Island R·TEC Region

Current Consortium Member Organizations

South Eastern Regional Vision for Education, Inc.

Regional Educational Laboratories (REL):
- South Eastern Regional Vision for Education
- Appalachian Educational Laboratory
- Southwestern Educational Development Laboratory

Eisenhower Mathematics and Science Consortia (REL-based)

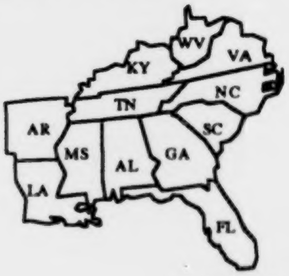
Regional Laboratory for Educational Improvement of the Northeast and Islands–Andover, MA

Southern Regional Education Board (SREB)

National Center on Adult Literacy (NCAL)

University of Central Florida:
Instructional Technology Resource Center

1664 LEAs
11.6 Million K-12



Virgin Islands & Puerto Rico

Emphasis:

I. Builds upon SERVE's successful implementation of SERVE-line, expanding both the scope of this work and the audience using the service.

II. Established a helpline/referral system, making personal assistance available to our customers six days a week, twelve hours a day.

III. Strong linkages with higher education agencies in the region, enhancing both pre-service and in-service teacher education programs.

Jean Williams, Director for
Instructional Technology Programs
SERVE, Inc.
P.O. Box 5406
Greensboro, NC 27435
Phone (910) 334-3211
Fax: (910) 334-3268
E:mail: jean.williams@bbs.serve.org

Appendix C

Regional Educational Laboratories

Margaret C. Wang
Executive Director
Mid-Atlantic Laboratory for
Students Success
933 Ritter Annex
13th Street & Cecil B. Moore
Philadelphia, PA 19123-4107
(DC, DE, MD, NJ, PA)

Terry Eidell
Executive Director
Appalachia Educational
Laboratory, Inc.
1031 Quarrier Street
P.O. Box 1348
Charleston, WV 25325
(KY, TN, VA, WV)

Roy Forbes
Executive Director
SERVE
University of North Carolina at
Greensboro
201 Ferguson Building.
Greensboro, NC 27435-5367
(AL, FL, GA, MS, NC, SC)

Preston Kronkosky
Executive Director
Southwest Educational
Development Laboratory
211 East Seventh Street
Second Floor
Austin, TX 78701-3281
(AR, LA, NM, OK, TX)

J. Timothy Waters
Executive Director
Mid-continent Regional
Educational Laboratory
2550 South Parker Road
Suite 500
Aurora, CO 80014
(CO, KS, MO, NE, ND, SD,
WY)

Dean H. Nafziger
Executive Director
WestEd
730 Harrison Street
San Francisco, CA 94107
(AZ, CA, NV, UT)

Ethel Simon-McWilliams
Executive Director
Northwest Regional Educational
Laboratory
101 South West Main Street
Suite 500
Portland, OR 97204-3212
(AK, ID, MT, OR, WA)

John W. Kofel
Executive Director
Pacific Region Educational
Laboratory
828 Fort Street Mall, Suite 500
Honolulu, HI 96813
(HI)

Adeline Becker
Acting Director
Northeast and Islands Laboratory
at Brown University
144 Wayland Avenue
Providence, RI 02906
(CT, MA, ME, NH, NY, PR,
VI, VT)

Jeri Nowakowski
Executive Director
North Central Regional
Educational Laboratory
1900 Spring Road, Suite 300
Oak Brook, IL 60521-1480
(IA, IL,IN, MI, MN, OH, WI)

Appendix D

ERIC Clearinghouses

The Educational Resources Information Center (ERIC), funded by OERI, is a nationwide information network that acquires, catalogs, summarizes, and provides access to education information from all sources. The data base and ERIC document collections are housed in about 3,000 locations worldwide, including most major public and university library systems. ERIC produces a variety of publications and provides extensive user assistance, including **AskERIC**, an electronic question answering service for teachers on the Internet (askeric@ericir.syr.edu). The ERIC system includes 16 subject-specific clearinghouses listed below, the ERIC Processing and Reference facility, and ACCESS ERIC—which provides introductory services. For more information call ACCESS ERIC at 800-LET-ERIC (1-800-538-3742).

ERIC Clearinghouse on Teaching and Teacher Education
American Association for Colleges for Teacher Education
One Dupont Circle NW, Suite 610
Washington, DC 20036-1186
(202) 293-2450
FAX (202) 457-8095

ERIC Clearinghouse on Assessment and Evaluation
Catholic University
Department of Education
O'Boyle Hall
Washington, DC 20064

ERIC Clearinghouse on Education Management
University of Oregon
1787 Agate Street
Eugene, OR 97403-5207
(503) 346-5043
FAX (503) 346-2334
(800) 438-8841

ERIC Clearinghouse on Rural Education and Small Schools
Appalachian Educational Laboratory
1031 Quarrier Street
Charleston, WV 25301
(800) 624-9120

ERIC Clearinghouse on Higher Education
George Washington University
One Dupont Circle NW, Suite 630
Washington, DC 20036-1183
(202) 296-2597
(800) 773-3742

ERIC Clearinghouse on Science, Math and Environmental Education
Ohio State University
1929 Kenny Road
Columbus, OH 43210-1080
(614) 292-6717

ERIC Clearinghouse on Adult, Career, and Vocational Education
CETE/Ohio State University
1900 Kenny Road
Columbus, OH 43210-1090
(614) 292-4353
(800) 848-4815

ERIC Clearinghouse on Urban Education
Teachers College
Columbia University
Main Hall/Rm 303
Box 40
525 West 120th Street
New York, NY 10027-6696
(212) 678-3433
(800) 601-4868

ERIC Clearinghouse on Elementary and Early Childhood Education
University of Illinois
805 West Pennsylvania Avenue
Urbana, IL 61801-4897
(217) 333-1386
(800) 583-4135

ERIC Clearinghouse on Social Studies/Social Science Education
SSDC, Indiana University
2805 East 10th Street, Suite 120
Bloomington, IN 47408-2698
(812) 855-3838
(800) 266-3815

ERIC Clearinghouse on Reading English, and Communication
REC, Indiana University
2805 East 10th Street, Suite 150
Bloomington, IN 47408-2698
(812) 855-5847
(800) 759-4723

ERIC Clearinghouse on Counseling and Student Services
University of North Carolina-Greensboro
School of Education
101 Park Building
Greensboro, NC 27412-5001
(800) 414-9769

ERIC Clearinghouse for Community Colleges
University of California, Los Angeles
3051 Moore Hall
405 Hilgard Avenue
Los Angeles, CA 90095-1521
(800) 832-8256

ERIC Clearinghouse on Languages and Linguistics
Center for Applied Linguistics
1118 22nd Street NW
Washington, DC 20037-0037
(202) 429-9292
(800) 276-9834

ERIC Clearinghouse on Disabilities and Gifted Education
Council for Exceptional Children
1920 Association Drive
Reston, VA 22091-1589
(703) 264-9474
(800) 328-0272

ERIC Clearinghouse on Information and Technology
Syracuse University
194 Center for Science and Technology
Syracuse, NY 13244-2340
(315) 443-3640
(800) 464-9107

Appendix E

Eisenhower Regional Mathematics and Science Consortia

The Eisenhower regional consortia grant projects work in conjunction with the Eisenhower National Clearinghouse to provide technical assistance and dissemination of information to aid individual teachers and states in implementing mathematics and science programs in accordance with state standards. Specific areas of assistance include teacher training, student assessment and uses of technology.

The Eisenhower Regional Alliance for Better School-Based Mathematics and Science Reform
Mark Kaufman, Project Director
Technical Education Resource Centers (TERC)
2067 Massachusetts Avenue
Cambridge, MA 02140
Phone: (617) 547-0430
FAX: (617) 349-3535
Region: CT, ME, MA, NH, NY, RI, VT, PR and the VI

The Mid-Atlantic Eisenhower Regional Consortium for Mathematics and Science Education
Keith Kirschner, Project Director
Research for Better Schools (RBS)
444 North Third Street
Philadelphia, PA 19123
Phone: (215) 574-9300 x 279
FAX: (215) 574-0133
Region: DE, MD, NJ, PA and DC

Southeast Mathematics and Science Regional Consortia
Francena Cummings, Project Director
Southeastern Regional Vision for Education (SERVE)
345 South Magnolia Drive, Suite D-23
Tallahassee, FL 32301-2950
Phone: (904) 671-6033
FAX: (904) 671-6010
Region: AL, FL, GA, MS, NC and SC

Eisenhower Regional Consortium for Mathematics and Science
Appalachia Educational Laboratory, Inc. (AEL)
Pam Buckley, Project Director
1031 Quarrier Street
Charleston, WV 25325
Phone: (304) 347-0400/(800) 624-8120
FAX: (304) 347-0487
Region: KY, TN, VA and WV

The Midwest Consortium for Mathematics and Science Education
Gil Valdez, Project Director
North Central Regional Educational Laboratory (NCREL)
1900 Spring Road, Suite 300
Oak Brook, IL 60521
Phone: (708) 218-1024
FAX: (708) 571-4716
Region: IA, IL, IN, MI, MN, WI and OH

The Eisenhower Consortium for Mathematics and Science Education
John Sutton, Project Director
Mid-Continental Regional Educational Laboratory (McREL)
2550 South Parker Road, Suite 500
Aurora, CO 80014
Phone: (303) 791-8292
FAX: (303) 337-3005
Region: CO, KS, MO, NE, ND, SD and WY

Science and Mathematics Consortium for Northwest Schools (SMCNWS)
Ralph Nelsen, Project Director
Columbia Education Center (CEC)
11325 SE Lexington
Portland, OR 97266-5927
Phone: (503) 760-2346
FAX: (503) 760-5592
Region: AK, ID, MT, OR and WA

Far West Eisenhower Regional Consortium for Science and Mathematics Education (FWERC)
Art Sussman, Project Director
Far West Laboratory for Educational Research and Development (FWL)
730 Harrison Street
San Francisco, CA 94107
Phone: (415) 241-2728
FAX: (415) 565-3012
Region: AZ, CA, NV and UT

Eisenhower Southwest Consortium for the Improvement of Mathematics and Science Teaching
Wes Hoover, Project Director
Southwest Educational Development Laboratory (SEDL)
211 East Seventh Street
Austin, TX 78701-3281
Phone: (512) 476-6861
FAX: (512) 476-2286
Region: AR, LA, NM, OK and TX

Eisenhower Regional Consortium for Mathematics and Science Education
Paul Dumas, Project Director
Pacific Region Educational Laboratory (PREL)
828 Fort Street Mall, Suite 500
Honolulu, HI 96813
Phone: (808) 533-6000 x 132
FAX: (808) 533-7599
Region: HI, American Samoa, Commonwealth of the Northern Mariana Islands, Federated States of Micronesia, Guam, Republic of the Marshall Islands and the Republic of Palau

Appendix F

New National Education Research and Development Centers

The National Educational Research and Development Center Program is administered by the U.S. Department of Education's Office of Educational Research and Improvement (OERI). OERI funds research and development centers across the country to carry out sustained research and development initiatives that address nationally significant problems and issues in education. Center awards are made to eligible higher education agencies, institutions of higher education in consort with public or nonprofit organizations, or to interstate agencies established by special compacts.

The eight centers are:

National Center to Enhance Early Development and Learning
University of North Carolina at Chapel Hill
Frank Porter Graham Child Development Center, CB #4100
Chapel Hill, NC 27599-4100
(919) 966-4250
Monitor: The National Institute on Early Childhood Development and Education

National Research and Development Center on Achievement in School Mathematics and Science
Wisconsin Center for Education Research
School of Education
University of Wisconsin—Madison
1025 West Johnson Street
Madison, WI 53706
(608) 263-3605
Monitor: The National Institute on Student Achievement, Curriculum, and Assessment

National Research Center an Improving Student Learning and Achievement in English
The Research Foundation of State University of New York
University of Albany, SUNY
School of Education
1400 Washington Avenue
Albany, NY 12222
(518) 442-5029
Monitor: The National Institute on Student Achievement, Curriculum, and Assessment

Center for Research on Evaluation, Standards, and Student Testing (CRESST)
University of California, Los Angeles
Graduate School of Education, 1339 Moore Hall
405 Hilgard Avenue
Los Angeles, CA 90024
(310) 206-1530
Monitor: The National Institute on Student Achievement, Curriculum, and Assessment

National Center for Research on Cultural Diversity and Second Language Learning
The Regents of the University of California
The University of California
1156 High Street
Santa Cruz, CA 95064
(408) 459-4114
Monitor: The National Institute on the Education of At-Risk Students

National Research and Development Center on Increasing the Effectiveness of State and Local Education Reform Efforts
Consortium for Policy Research in Education (CARE)
Graduate School of Education
University of Pennsylvania
3440 Market Street, Suite 560
Philadelphia, PA 19104-3325
(215) 573-0700, ext. 224
Monitor: The National Institute on Educational Governance, Finance, Policymaking, and Management

National Center for Postsecondary Improvement
Stanford Institute for Higher Education Research
508 Ceras Building
Stanford University
Stanford, CA 94305-4125
(415) 723-7727
Monitor: The National Institute on Postsecondary Education, Libraries, and Lifelong Learning

National Reading Research Center (NRRC)
University of Georgia
318 Aderhold
Athens, GA 30602-7125
(706) 542-3678
Monitor: The National Institute on Student Achievement, Curriculum, and Assessment

Appendix G

NASA Teacher Resource Centers

If you live in:	Contact:
Alaska Arizona California Hawaii Idaho Montana Nevada Oregon Utah Washington Wyoming	NASA Ames Research Center Teacher Resource Center Mall Stop T12-A Moffett Field, CA 94035-1000 (415) 604-3574
California (Mainly cities near Dryden Flight Research Facility)	NASA Dryden Flight Research Facility Public Affairs Office (Trl. 42) Teacher Resource Center Edwards AFB, CA 93523-0273 (805) 258-3456
Connecticut Delaware District of Columbia Maine Maryland Massachusetts New Hampshire New Jersey New York Pennsylvania Rhode Island Vermont	NASA Goddard Space Flight Center Teacher Resource Laboratory Mall Code 130.3 Greenbelt, MD 20771-1000
Virginia's and Maryland's Eastern Shores	NASA Goddard Space Flight Center Wallops Flight Facility Education Complex–Visitor Center Teacher Resource Lab Building J-17 Wallops Island, VA 23337 (804) 824-2297/2298

For inquiries related to space and planetary exploration	NASA Jet Propulsion Laboratory Teacher Resource Center JPL Educational Outreach 4800 Oak Grove Drive Mail Code CS-530 Pasadena, CA 91109-8099 (818) 354-6916

If you live in:	Contact:
Florida Georgia Puerto Rico Virgin Islands	NASA John F. Kennedy Space Center Educators Resource Laboratory all Code ERL Kennedy Space Center, FL 32899-0001 (407) 867-4090
Colorado Kansas Nebraska New Mexico North Dakota Oklahoma South Dakota Texas	NASA Johnson Space Center Teacher Resource Center Mall Code AP 2 Houston, TX 77058-3696 (713) 483-8696
Kentucky North Carolina South Carolina Virginia West Virginia	NASA Teacher Resource Center for Langley Research Center Virginia Air and Space Center 600 Settler's Landing Road Hampton, VA 23669-4033 (804) 727-0900 ext. 757 (804) 727-0800 ext. 757 nkoltura@vasc.mus.va.us
Illinois Indiana Michigan Minnesota Ohio Wisconsin	NASA Lewis Research Center Teacher Resource Center Mail Stop 8-1 21000 Brookpark Road Cleveland, OH 44135-3191 (216) 433-2017

If you live in:	Contact:
Alabama Arkansas Iowa Louisiana Missouri Tennessee	NASA Teacher Resource Center for Marshall Space Flight Center U.S. Space & Rocket Center P.O. Box 070015 Huntsville, AL 35807-7015 (205) 544-5812
Mississippi	NASA Stennis Space Center Teacher Resource Center Building 1200 Stennis Space Center, MS 39529-6000 (601) 688-3338

NASA Contacts by State

Alabama
Tri-State Learning Center
NASA Teacher Resource Center
P.O. Box 508
Iuka, MS 38852-0508
(601) 423-7455

Alaska
Alaska Science Center
NASA Regional Teacher Resource Center
Alaska Pacific University
4101 University Drive
Anchorage, AK 99508
(907) 564-8207

Arizona
Lunar and Planetary Lab
NASA Regional Teacher Resource Center
University of Arizona
Tucson, AZ 85721-0001
(602) 621-6939/6947

Arkansas
University of Arkansas-Little Rock
Natural Science Building, Room 215
2801 South University
Little Rock, AR 72204
(501) 569-3259

California
NASA Joaquin Valley Regional
Teacher Resource Center
California State University, Fresno
Mail Stop 01
5005 North Maple Avenue
Fresno, CA 93740-0001
(209) 278-0355

Colorado
U.S. Space Foundation
NASA Regional Teacher Resource Center
2860 South Circle Drive, Suite 2301
Colorado Springs, CO 80906-4184
(719) 576-8000

Delaware
Delaware Aerospace Center
Claymont Education Campus
NASA Regional Teacher Resource Center
3401 Green Street
Claymont, DE 19703
(302) 792-3806

District of Columbia
National Air and Space Museum
Smithsonian Institution
Education Resource Center, MRC-305
Washington, DC 30560
(202) 786-2109

University of the District of Columbia
NASA Regional Teacher Resource Center
Mail Stop 4201
4200 Connecticut Avenue, NW
Washington, DC 20008
(202) 247-6287

Georgia
Southern College of Technology/GYSTC
1100 South Marietta Parkway
Marietta, GA 30060-2896
(404) 528-6272

Hawaii
Barbers Point Elementary School
NASA Regional Teacher Resource Center
Boxer Road
Barbers Point Naval Air Station
Ewa Beach, HI 96706
(808) 673-7410

Idaho
University of Idaho at Moscow
NASA Regional Teacher Resource Center
ID Space Grant College Fellowship Program
College of Education
Moscow, ID 63843
(208) 885-6030

Illinois
Chicago Museum of Science and Industry
NASA Regional Teacher Resource Center
57th Street and Lakeshore Drive
Chicago, IL 60637-2093
(312) 684-1414, ext. 2426

Parks College of St. Louis University
NASA Regional Teacher Resource Center
Route 157 and Falling Springs Road
Cahokia, IL 62206
(618) 337-7500

Indiana
University of Evansville
NASA Regional Teacher Resource Center
School of Education, 1800 Lincoln Avenue
Evansville, IN 47722
(812) 479-2393

Iowa
University of Northern Iowa
NASA Regional Teacher Resource Center
IRTS, Room 222
Schindler Education Center
Cedar Falls, IA 50614-0009
(319) 273-6088

Kansas
Kansas Cosmosphere and Space Center
NASA Regional Teacher Resource Center
1100 North Plum
Hutchinson, KS 67501-1499
(316) 662-2305 or
1-800-397-0330

Kentucky
Murray State University
NASA Regional Teacher Resource Center
P.O. Box 9
University Library
Murray, KY 42071-0009
(502) 762-2850

Louisiana
Bossier Parish Community College
NASA Regional Teacher Resource Center
2719 Airline Drive
Bossier City, LA 71111
(318) 748-7754

Southern University–Shreveport
NASA Regional Teacher Resource Center
Downtown Metro Center
610 Texas Street
Shreveport, LA 71101
(318) 674-3444

Michigan
Central Michigan University
NASA Regional Teacher Resource Center
Ronan Hall, Room 101
Mount Pleasant, MI 48859
(517) 774-4387

Northern Michigan University
NASA Regional Teacher Resource Center
Olson Library Media Center
Marquette, MI 49655
(906) 227-2270

Oakland University
NASA Regional Teacher Resource Center
O'Dowd Hall, Room 216
Rochester, MI 48309-4401
(313) 370-2485/4230

Minnesota
Mankato State University
NASA Regional Teacher Resource Center
Department of Curriculum and Instruction
MSU Box 52/P.O. Box 8400
Mankato, MN 56002-8400
(507) 389-1516

St. Cloud State University
Center for Information Media
NASA Regional Teacher Resource Center
720 4th Avenue South
St. Cloud, MN 56301
(612) 255-2082

Mississippi
Mississippi Delta Community College
NASA Regional Teacher Resource Center
P.O. Box 668
Moorhead, MS 38761
(601) 246-5631, ext. 125

Tri-State Learning Center
NASA Teacher Resource Center
P.O. Box 058
Iuka, MS 38852-0508
(601) 423-7455

Montana
West Montana College of the University of Montana
NASA Regional Teacher Resource Center
Carson Library
710 South Atlantic
Dillon, MT 59725
(408) 683-7541

Nebraska
University of Nebraska State Museum
NASA Regional Teacher Resource Center
14th and U Streets
307 Morrill Hall
Lincoln, NE 68588-0338
(402) 472-6302

University of Nebraska at Omaha
Mallory Kountze Planetarium
Durham Science Center, Room 144
60th and Dodge Street
Omaha, NE 68182-0266
(402) 554-2510

Nevada
Community College of Southern Nevada
NASA/Nevada Regional Teacher Resource Center
C2A
Learning Resource Center
Room 2100 F
3200 East Cheyanne Avenue
North Las Vegas, NV 89030-4296
(702) 651-4505

New Mexico
New Mexico State University
NASA Regional Teacher Resource Center
New Mexico Space Grant Consortium
Box 30001, Department SG
Las Cruces, NM 88003-0001
(505) 646-6414

University of New Mexico
NASA Regional Teacher Resource Center
Continuing Education and Community Service
1634 University N.E.
Albuquerque, NM 87131-4006
(505) 277-3861

New York
The City College
NASA Regional Teacher Resource Center
Harris Hall, Room 109
Convent Avenue at 138th Street
New York, NY 10031
(212) 650-6993

North Carolina
University of North Carolina–Charlotte
NASA Regional Teacher Resource Center
J. Murray Atkins Library
Charlotte, NC 28223
(703) 547-2559

North Dakota
University of North Dakota
NASA Regional Teacher Resource Center
The Wayne Paterson Room
Clifford Hall - 5th Floor
Space Studies Department
P.O. Box 9008, University Station
Grand Forks, ND 58202-9008
(701) 777-4856 or (800) 828-4274

Ohio
University of Cincinnati
NASA Regional Teacher Resource Center
Curriculum Resources Center Library
Mall Location 0219
600 Blegan Library
Cincinnati, OH 45221-0219
(513) 556-1430

Oklahoma
Oklahoma State University
NASA Aerospace Education Resource Center
308A CITD
Stillwater, OK 74078-0422
(405) 744-7009

Oregon
Oregon Museum of Science and Industry
NASA Regional Teacher Resource Center
Science Program Department
1945 South East Water Avenue
Portland, OR 97214-3354
(503) 797-4579

Pennsylvania
University of Pittsburgh
Computer Curriculum Information Center
NASA Regional Teacher Resource Center
230 South Boquet Street
Pittsburgh, PA 15260
(412) 648-7580/7558

Rhode Island
Rhode Island College
NASA Regional Teacher Resource Center
Curriculum Resources Center
600 Mount Pleasant Avenue
Providence, RI 02908
(401) 456-8567/8065

South Carolina
Stanback Planetarium
NASA Regional Teacher Resource Center
P.O. Box 7636
South Carolina State University
Orangeburg, SC 29117-7636
(803) 536-8709/7174/8119

South Dakota
NASA Regional Teacher Resource Center
1925 Plaza Boulevard
Rapid City, SD 57702
(605) 394-1676

Tennessee
Tri-State Learning Center
NASA Teacher Resource Center
P.O. Box 508
Iuka, MS 38852-0508
(601) 423-7455

University of Tennessee at Martin
NASA Regional Teacher Resource Center
Center for Excellence in Mathematics and Science
Martin, TN 38238-5029
(901) 587-7191/7166

Texas
NASA Regional Teacher Resource Center
Education Service Center Region 12
P.O. Box 23409
Waco, TX 76702-3409
(817) 666-0707

Utah
Utah State University
NASA Regional Teacher Resource Center
Logan, UT 84322-2845
(801) 797-3377

Weber State University
NASA Regional Teacher Resource Center
Curriculum Library
College of Education
Ogden, UT 84408-1302
(801) 626-7614/6279

Vermont
Norwich University
Vermont College Educational Resource
Center
NASA Regional Teacher Resource Center
Schulmaler Hall
Montpelier, VT 05602
(802) 828-8845

Virginia
Radford University
NASA Regional Teacher Resource Center
P.O. Box 6999 Walker Hall
Radford, VA 24142
(703) 831-6284

Washington
University of Washington
NASA Regional Teacher Resource Center
AK-50, c/o Geophysics Department
Seattle, WA 98195
(206) 543-1943

West Virginia
Wheeling Jesuit College
NASA Regional Teacher Resource Center
316 Washington Avenue
Wheeling, WV 26003
(304) 243-2401

Wisconsin
University of Wisconsin at LaCrosse
NASA Regional Teacher Resource Center
Morris Hall, Room 200
LaCrosse, WI 54601
(608) 785-8148/8650

Wyoming
University of Wyoming
NASA Regional Teacher Resource Center
Learning Resource Center
P.O. Box 3374 University Station
Laramie, WY 82071-3374
(307) 766-2527

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